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- FRIGID WATER
- CONTAMINATION
- SHARK ATTACKS

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GEAR:
WATERSHED'S
ZIPDRY BAG**

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WARCRAFT
TANTO**

**DO IT ALL:
REAL AVID'S
RUGGED
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ON THE COVER:

Fashioning a raft quickly and efficiently with random and easily accessible materials is essential to escape the wrath of a river jumping its banks.

Warcraft Tanto courtesy Cold Steel Knives;
Wolf pAX 2 hatchet courtesy Tops Knives;
Minimalist survival bracelet courtesy Wazoo
Survival Gear; Chattooga DryBag courtesy
Watershed; UST See-Me 2.0 personal locator
beacon courtesy Battlbox; Mission Pack
backpack courtesy Elite Survival Systems.

Special thanks to Pat Raahauge at Mike
Raahauge Shooting Enterprises in Corona,
California, for use of their facilities.

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Subject: SCOTT FOX

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Ryan Lee Price
rprice@EngagedMediaInc.com

Message in a Bottle



Enjoying a bottle of wine on the beach one night nearly 30 years ago with the woman I would eventually marry, we thought it would be fun to write a message, put it in the bottle, and toss it in the ocean. We dreamed it would drift around the world several times only to be found 100 years after we were gone. As soon as we arrived home a voicemail was waiting, telling us someone had already found it. So much for romance.

The water is romantic from shore, but wading out even waist-deep can mean certain doom for the unprepared among us. Water does not forgive and if you are not properly equipped you might find yourself flinging a bottle out to sea in a desperate plea for help that might never be heard.

The bottle 44 Japanese sailors threw into the ocean for help in 1794 after their ship sank in the South Pacific wasn't discovered for another 150 years, long after the crew perished on the island. Another was penned on the sinking Lusitania in 1915 and was left unfinished.

"Still on deck with a few people," it said. "The last boats have left. We are sinking fast. Some men near me are praying with a priest. The end is near. Maybe this note will..."

Early studies of ocean current patterns were conducted with bottles. The largest ocean current study is still going. In 1914, Captain C. Hunter Brown of Glasgow set nearly 2,000 bottles adrift. Only 315 of the bottles have been found so far, the last one just a few years ago.

The ship *Montecristo* was attacked by Somali pirates about 620 miles off the Horn of Africa in 2011. Pirates overran the ship and its crew took refuge in an armored cargo area after calling for help. The British Navy responded to the SOS before communications were completely cut off. The hijacked crew was able to communicate the situation to the British Navy via a message in a bottle tossed out of a porthole in the cargo hold and the pirates eventually surrendered.

Ryan

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WHEN ALL HELL BREAKS LOOSE

by Cody Lundin

ITEM #12-0007

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- 1 Scalpel Blade

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With Whistle

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- 3,124 channel combos
- Includes rechargeable batteries or AAs
- Can be used hands-free
- Weighs 5 ounces

cobra.com

Around \$80



2

Stashable Water Bottle

Hydrapak Stash Bottle—it's a collapsible water bottle. You end up with a lightweight, standard-shape bottle that can be a space-saver or expand for normal bottle-drinking.

- BPA-free
- Dishwasher safe
- Leak-proof and antifungal
- Collapses to 2 inches

hydrapak.com

About \$20



3

Battery Jump-Start

The JumperPack mini from Cyntur can jump-start a vehicle with an engine up to eight cylinders, but get this: It can also charge mobile devices and has a flashlight. It weighs less than a pound, so it can fit in your glovebox.

- 200 lumens LED lights
- No short circuits or over-current
- 2.1 USB port
- Weatherproof

cyntur.com

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The MSR Guardian portable water purifier can take the ickiest water source and turn it into drinkable water. It's a military-grade micro-biological purifier that uses medical-grade fibers to block even tiny waterborne pathogens.

- Hollow fiber technology
- No chemicals or waiting
- Self-cleans; no scrubbing of filters
- Durable from drops, heat, and cold

msrgear.com

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5

5

FlameStower FireCharger

Check out the FlameStower FireCharger, which is a compact USB charger (i.e. phone, camera) that gets its power source from a stove or campfire. In other words, stick the anodized aluminum blade edge into the fire or heat source, add water to the heat-resistant cup, and charging happens.

- Generates 2.5 watts of power
- 10 ounces
- Folds to 8x1.5-inch size

flamestower.com

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6

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Trying to have every tool imaginable, but welders elude you? Check out the Millermatic 141, because it has Auto-Set, which will automatically give you the correct settings to weld mild steel, perfect if you're new to welding. It also has manual mode for custom parameters.

- Splatter-free start
- 10-foot work cable
- MIG power

millerwelds.com

Starts at around \$769



6

NEW 08.15 PRODUCTS



7

7

Watertight Backpack

The Scrambler 30 OutDry backpack from Mountain Hardware has a watertight design, but it does allow some water in—as in, there's a hydration sleeve with drainage under the pocket. Deep pockets, padded shoulder pads, and carry loops are among the convenience features.

- 400D HD nylon
- Stowable webbing belt
- Rope strap
- Adjustable sternum strap

mountainhardware.com

About \$130



8



9

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8

Special-Edition Pocketknife

Benchmade and Shinola have partnered on a custom valet pocketknife, which has Benchmade's familiar AXIS locking mechanism, an M390 stainless steel blade, and Shinola branding. Each knife has a unique grain pattern and color, so no two are the same.

- Dymondwood handle
- Movable pocket clip, lefties
- 2.18 oz
- Blade is 2.96 inches

shinola.com
\$200

9

Baselayer Top

Helly Hansen knows how to make body-temp regulation happen. And the company's LIFA Hi-Vis are base layers capable of providing UV protection, and also have LIFA Flow to move moisture away from the skin fast.

- Chin guard minimizes chafing
- Reflective elastic transfer print
- Half-zip jersey and crew neck available
- Sizes run up to 3XL

hellyhansen.com
Around \$50

10

Weather Hoody

The Polartec NeoShell is a technology in and of itself. It's a unique fabric that is breathable, has ventilation, has stretch, and has the waterproof performance you'd expect from a hard shell. It'll even block the wind nearly 100 percent.

- Adjustable hood and waist
- DRI pocket
- Weighs 12 ounces
- Sizes up to 2XL

westcomb.com
\$430



NEWS^{08.15} & NOTES

"EMERGENCIES CAN HAPPEN ANYTIME, ANYWHERE, AND THIS FUNDING ALLOWS US TO ENHANCE THE CAPABILITIES OF OUR FIRST RESPONDERS, ENSURING THEY ARE READY FOR ANY POTENTIAL EMERGENCY OR DISASTER."

—RENE FIELDING, THE DIRECTOR OF THE OFFICE OF EMERGENCY MANAGEMENT



Boston Gets \$18 Mil for Homeland Security

THE U.S. DEPARTMENT of Homeland Security gave \$18 million in grant funding to the City of Boston and Metro Boston Security Region through the Urban Area Security Initiative. The city will use the money toward improving the capabilities of first responders and helping communities prep for emergencies.

Disaster Declarations on the Decrease

In 2014, there were only 84 federally declared disasters and fire grants issued, the lowest number in 14 years. The president declared 45 major disasters; 2001 was the last time for that number, according to FEMA.

“

So I'm here today to say that climate change constitutes a serious threat to global security, an immediate risk to our national security. And make no mistake, it will impact how our military defends our country. And so we need to act—and we need to act now.”

—PRESIDENT OBAMA
DURING THE COAST GUARD
ACADEMY COMMENCEMENT



Survive a Tsunami: Fast Walk

A STUDY BY the Proceedings of the National Academy of Sciences looked at the coastline of Oregon, Washington, and Northern California, noting that roads would be too damaged to drive after a quake and tsunami. However, it estimated that about 5,500 more residents of the communities could survive if they walk about 3.5 mph toward higher ground, but that 21,562 people would not if they walked slowly, at 2.5 mph.



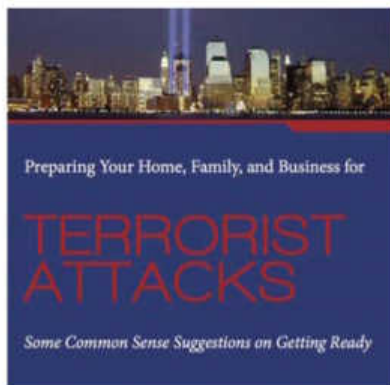
Department of Homeland Security Hits Silicon Valley

CYBERSECURITY—it's a serious concern in this modern era, and is a priority for the government in 2015. And now, the DHS is opening a satellite office in Silicon Valley “to strengthen critical relationships” and “to ensure that the government and private sector benefit from each other's research and development,” explained Jeh Johnson, Secretary of Homeland Security.



SURVEY SAYS: 60 Percent of You Aren't Prepared

A SURVEY by FEMA found that almost 60 percent of American adults have not practiced what to do in a disaster by attending a disaster drill or participating in preparedness exercises at home, school, or work in the past year. And only 39 percent of those surveyed have put together an emergency plan and talked about it with their household. As part of the America's PrepareAthon! program, you should sign up for local text alerts and get weather apps as well as suggestions to prep including keeping important docs in a safe place, having an emergency plan with your family, and having an emergency kit.



Terrorist Attack Preparedness Manual

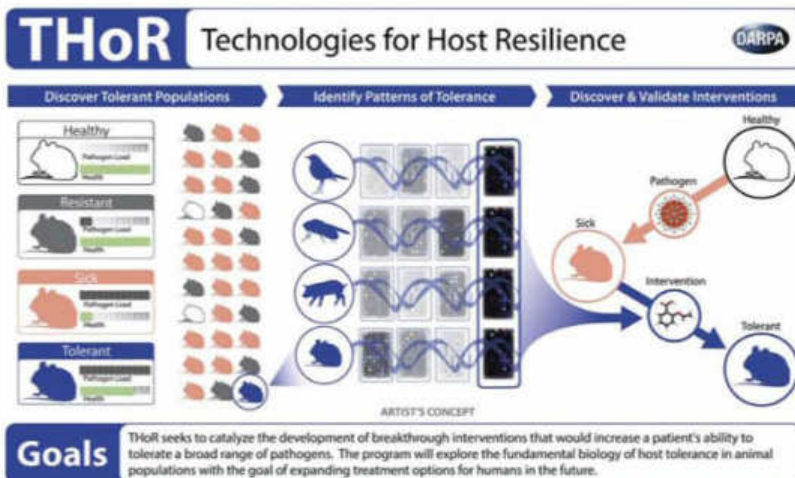
U.S. REPRESENTATIVE Robert Pittenger from North Carolina's 9th District, and Chairman of the Congressional Task Force on Terrorism and Unconventional Warfare, has created a preparedness manual, a "beginner's handbook" for dealing with sudden, unwelcome changes in our day-to-day lives." It offers "common sense suggestions" on "getting ready," be it home, family, or business. Download it at pittenger.house.gov.

Earthquakes Linked to Oil and Gas Drilling

THE OKLAHOMA GEOLOGICAL SURVEY has observed seismicity rates and geographical trends after major oil and gas drills "unlikely to represent a naturally occurring process." The belief is that the increase in earthquakes in Oklahoma is being triggered by "the injection of produced water in the disposal wells" associated with oil and gas production.

New Device to Detect Explosives in Electronic Devices

THE DEPARTMENT OF HOMELAND SECURITY has signed an agreement with One Resonance Sensors to test out the MobiLab ES checkpoint security scanner, which is used to detect explosives in electronic devices. Why is this good news? As of last summer, airport security required travelers on some flights to turn on electronic devices in the screening process, which slowed things down or caused passengers to hand over their electronics. But this has the ability to scan without turning on equipment.



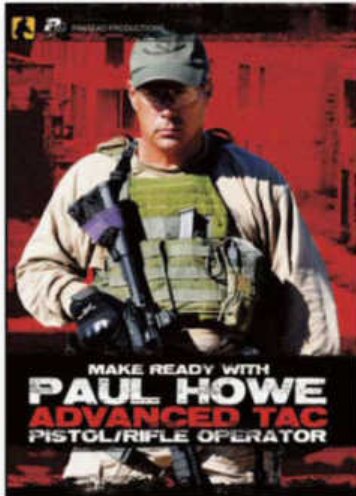
DARPA's War on Infection

NEW FROM THE DEFENSE ADVANCED RESEARCH PROJECTS AGENCY (DARPA), which is all about creating technologies for national security, comes the new Technologies for Host Resilience (THoR). Its goal is "development of breakthrough interventions that would increase the ability of patients' own bodies to tolerate a broad range of pathogens." In other words, helping the body more easily deal with infections and allow the body's natural recovery to take place. ■■■



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Shark Attack!

Story by **Nikki Grey** | Photography by Robby Barthelme

RODNEY FOX HAD BEEN DIVING FOR HOURS WHEN HE DECIDED TO SWIM FARTHER OFFSHORE INTO DEEPER WATER. IT WAS DECEMBER 8, 1963, AND FOX WAS COMPETING IN THE SOUTH AUSTRALIAN SPEARFISHING CHAMPIONSHIPS AS THE DEFENDING CHAMPION. AFTER HE SPEARED A COUPLE OF FISH SOME 40-TO-50-FEET UNDERWATER, FOX SAW A DUSKY MORWONG, A FISH THAT WOULD EARN HIM HIGH POINTS IN THE COMPETITION.

"I was about to pull the trigger when this huge crash knocked me aside and I was pulled through the water," recalled Mr. Fox, now in his 70s and living in Glenelg, a suburb of Adelaide in South Australia.

"I had this flash of a big black train hitting me." The spear gun was torn from his hands as the great white shark clamped down on Fox's chest and darted downward.

After gouging its eyes, Fox fell from the shark's mouth. Instinctively, he tried to push away and climb to the surface. However, the shark chomped down on his arm, but he was able to rip it free. Running out of air, he pushed up and kicked his feet until he reached the surface.

And then he looked down...



HOW TO AVOID THE GREAT MAN EATERS OF THE DEEP

PHOTO BY JIM WATT / GETTY IMAGES

"THE SHARK BROKE EVERY RIB IN FOX'S LEFT SIDE, RIPPED OPEN A LUNG, EXPOSED VITAL ORGANS, AND SEVERED FOUR OF HIS TENDONS IN HIS ARM."



Shark Attacks By the Numbers

6 feet

Depth of water (in feet) that 93% of shark attacks happen.

100 feet

Distance from shore that most shark attacks occur.

1 in 3,700,000

Chance of being killed by a shark.

19 5

Average number of shark attacks in the U.S. each year.

Average number of people worldwide who die from shark attacks each year.

1:2,000,000

Average ratio of humans killed by sharks versus sharks killed by humans each year.

CLOSE CALL

"I remember seeing it through the pink bloody water coming towards me," Fox said. "A miracle happened there; the shark, instead of going for me, went straight for the float I was towing behind me, and it swallowed the float and the fish, and then it went down and dragged me with it. I was spinning, spinning, spinning. I was just about out of air. I tried to find the catch and I couldn't find it and then a miracle happened: The line snapped."

Fox made it to the surface and was rescued. The shark broke every rib in Fox's left side, ripped open a lung, exposed vital organs, and severed four of his tendons in his arm.

WHY SHARKS ATTACK

Ralph Collier, the president of the nonprofit foundation Shark Research Committee, doesn't believe that most attacks on humans are the result of the shark mistaking the subject for a regular meal.

"The majority of white shark attacks are quite gentle considering what they are capable of. It's because they're investigating. They're testing," said Collier. "If they wanted to eat us, they would."

In addition, some attacks indicate displacement behavior, when a shark is trying to get something perceived as threatening to leave an area. This could be an area where they're feeding or where a female shark had decided to give birth, Collier said.

Collier, who noted sharks have good vision and can see color, cited incidents when sharks bump kayaks or people, rather than killing them, or bite people in a manner that isn't necessarily deadly.

"We have to stop and think, 'What does the shark know about its environment?' It knows all the things that naturally occur there," he said. "When something unnatural is around, it attracts their curiosity."

SHARKS IN THE WILD

Collier recommends humans must use common sense around sharks, like any large animal. They should be careful not to do anything that might result in a provoked attack.

93% Of shark attacks are on men.

42% Of unprovoked shark attacks were in North America in 2010. There were 32.

50.8% Of victims were surfers.

38% Of victims were swimmers.

20% Of attacks were between 2 and 3 p.m. of 139 attacks reported in Florida between 1960-2010

SOURCE: DISCOVERY CHANNEL'S "SHARK WEEK"

West Coast Attacks

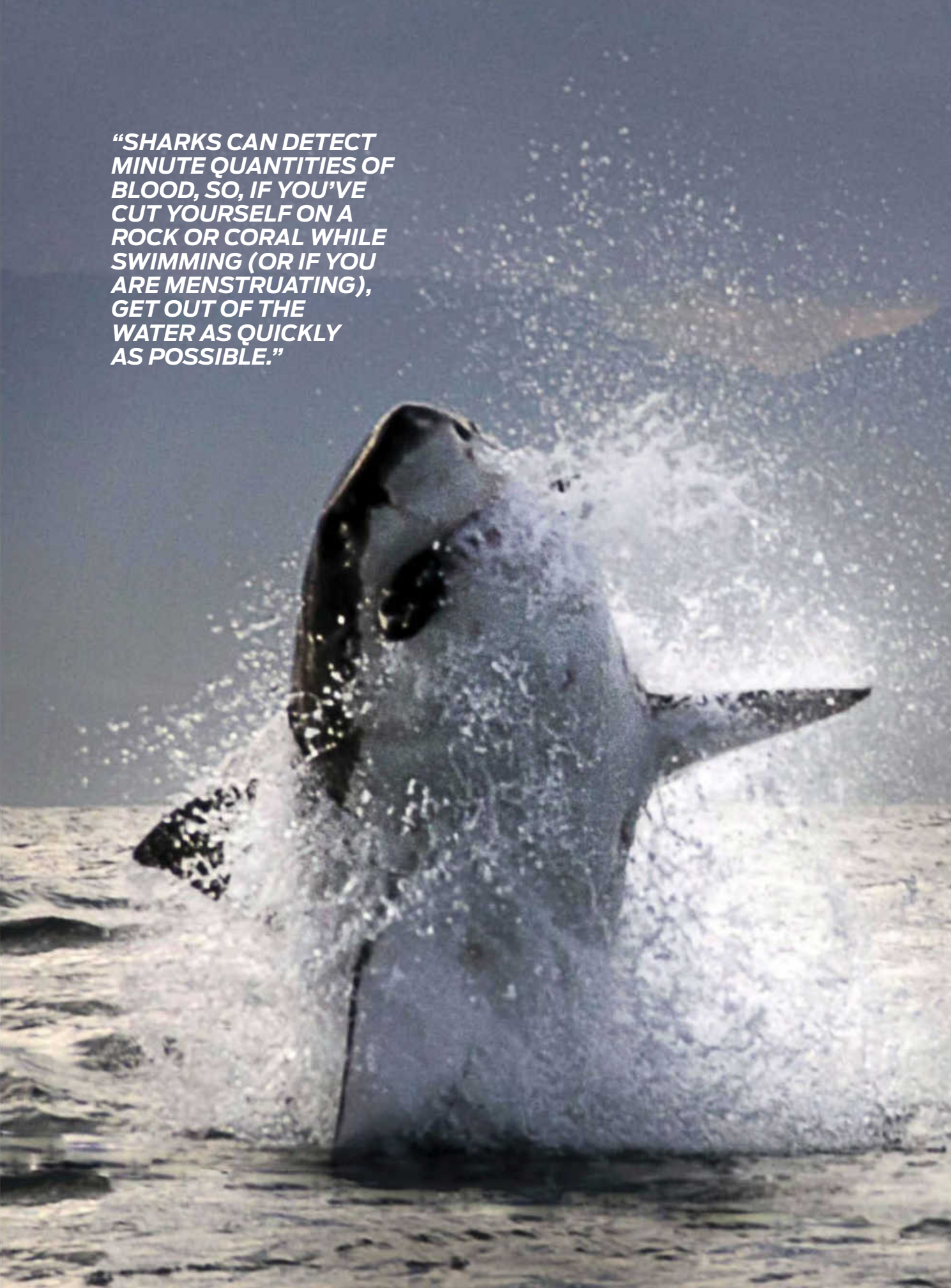
According to the Shark Research Committee, a scientific research nonprofit that focuses on the biology, behavior and ecology of sharks from the Pacific Coast of North America, there have been 191 authenticated unprovoked shark attacks reported on the Pacific Coast since 1900, with 87 percent attributable to great white sharks in California. Other species of sharks common to the Pacific Coast such as makos, hammerheads, and threshers have the potential to be dangerous, but great white sharks perpetrate the majority of attacks. Three species of shark are responsible for most human attacks: great white, tiger, and bull sharks.

"These actions could be pulling a shark's tail, jabbing or poking a shark with a speargun or similar object, cornering or cutting off a shark's route to open water, attempting to feed a shark by hand, chumming or baiting a shark to your area, and/or making an aggressive gesture toward an approaching shark," said Collier, author of "Shark Attacks of the Twentieth Century: From the Pacific Coast of North America" (Scientia Publishing, 2003). "These are just a few examples of the type of action that might provoke a shark to strike out."

Volunteers from all over the world contribute research to the Shark Research Committee, founded by Collier in 1963. One mainstay of its website, sharkresearchcommittee.com, is Pacific Coast Shark News, a page that has information on recent shark sightings or activity in the area, so that people can make informed decisions regarding going into the ocean when sharks have been nearby. People who know about recent shark activity can inform Collier via email. He follows up with them and puts a brief narrative on the website.

PHOTO BY NOEL HENDRICKSON / GETTY IMAGES; SHARK JAWS IMAGE BY THINKSTOCK

**“SHARKS CAN DETECT
MINUTE QUANTITIES OF
BLOOD, SO, IF YOU’VE
CUT YOURSELF ON A
ROCK OR CORAL WHILE
SWIMMING (OR IF YOU
ARE MENSTRUATING),
GET OUT OF THE
WATER AS QUICKLY
AS POSSIBLE.”**



GET OUT OF THE WATER

Peter Howorth, director of the Santa Barbara Marine Mammal Center, a nonprofit that rescues and cares for sick and injured marine mammals along the Santa Barbara County coastline, recommends using a radio or satellite phone while at the beach and knowing where shark “hot spots” are located. Both Collier and Howorth say it’s best to get out of the water as quickly as you can if you see a great white shark.

“If you do see a shark and you’re not sure of what species it is, just move slowly and calmly back to the beach or boat,” Collier said. “It’s better to be safe than sorry and simply because this thing is cruising slowly and calmly doesn’t mean something won’t happen where this shark will become aggravated (and aggressive toward) you.”

As for Fox, the shark attack survivor encourages his children and grandchildren to swim and dive because he believes the odds of an attack are low.

If there has been a sighting of a large shark in the area, however, Fox recommends they wait a few days before getting back into the water.

WHEN DOES A SHARK ATTACK

Howorth believes that the public has many misconceptions about shark attacks on humans, including how often they occur.

“Attacks in general are very uncommon, considering the number of people in the water, but of the attacks we do see, it’s not uncommon that the people have been swimming in areas frequented by pinnipeds [aka seals],” Howorth said, adding that “sharks can detect minute quantities of blood.”

So, if you’ve cut yourself on a rock or coral while swimming (or if you are menstruating), get out of the water as quickly as possible.

SURVIVING AN ATTACK

Taking into consideration of when sharks attack, Howorth recommends having a survival plan before going into the water; for example, if you are a surfer, know how to use your surfboard leash as a tourniquet.

“Take first-aid courses and learn about controlling the bleeding and CPR,” Howorth said, noting that keeping your wetsuit on can help control bleeding as well as help keep body parts together. “Have reliable means of communication.”

“If you’re in the water, looking at the shark at the time it starts circling you, keep your eyes on the shark, turning (with) and watching it,” Fox said, “and move closer to other people or other swimmers or toward the boat or toward the shore. Don’t swim off like a wounded seal because they are largely ambush predators that don’t like attacking from the front.”

When a shark attack does seem imminent, there are a few things you can do to stay alive. Don’t play dead because the shark will think that it has succeeded in killing its lunch. When confronted, striking the shark in the nose and eyes is a good first step in thwarting its attack. The most vulnerable parts of a shark are the eyes and gills. Sharks have a protective skin that covers the eyes when they are attacking, so you’ll have to strike hard. Use your thumbs to gouge its eyes or grab and tear at its gills.

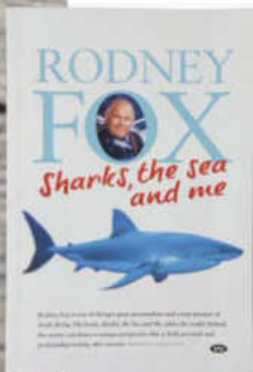
A shark will most times circle its intended prey but sometimes will zig-zag back and forth, looking for a better angle of attack. If you can, back up against something, a jetty, a boat, anything to reduce the number of angles from which it can attack.

Sharks, like fish, are attracted to shiny objects (like fish scales) such as flashy jewelry, and they are very good at seeing contrasting colors. Avoid wearing bright colors like yellows and oranges, and leave your jewelry in the boat.

Pay attention to your surroundings, specifically other animals. If other sea life are acting erratic or if they have suddenly and quickly vanished, be wary that they did so for a good reason. While on the subject of animals, don’t swim with dogs in the ocean. Their swimming patterns exactly match those of a wounded fish and can easily attract sharks.

Most importantly, remember this: in the sea, the shark is at the top of the food chain.

“And it was your choice to go in there,” Fox adds. ■■■



FOR MORE INFORMATION

Rodney Fox, whose book “Sharks, the Sea and Me” (Wakefield Press, 2013) describes his attack and how it shaped everything in his life after, became a celebrity of sorts in the shark world. Wax replicas of his shark-bite wounds have been featured in several Ripley’s Believe It or Not! exhibits around the world, and he’s led expeditions for film crews, scientists, tourists, and others to dive with great whites.



THE WORLD'S 10 MOST DANGEROUS SHARKS

THOUGH A SHARK ATTACK IS EXTREMELY RARE, IT DOES HAPPEN TO DOZENS OF PEOPLE EACH YEAR AND MOSTLY BY THE 10 SHARKS LISTED HERE (IN ORDER OF NUMBER OF ATTACKS). IN FACT, THE GREAT WHITE SHARK IS RESPONSIBLE FOR MORE UNPROVOKED ATTACKS ON HUMANS THAN THE OTHER NINE SHARKS COMBINED.

1

GREAT WHITE SHARK

(*Carcharodon carcharias*)

Average life span:

70 years or more

Size: 15 to more than 20 feet

Weight: 5,000 pounds or more

Protection status:

Endangered

Odd fact: Great whites can detect one drop of blood three miles away.

2

TIGER SHARK

(*Galeocerdo cuvier*)

Average life span:

Up to 50 years

Size: 10 to 14 ft (3.25 to 4.25 m)

Weight: 850 to 1,400 lbs (385 to 635 kg)

Protection status:

Not threatened

Odd fact: The tiger shark will swallow anything it comes across.

3

BULL SHARK

(*Carcharinus leucas*)

Average life span:

16 years

Size: 7 to 11.5 feet

Weight: 200 to 500 pounds

Protection status:

Not threatened

Odd fact: Bull sharks have been found thousands of miles up the Amazon River.

4

REQUIEM SHARKS FAMILY

(*Carcharhinus* spp.)

Average life span: Varies

Size: 11 feet

Weight: 200 to 500 pounds

Protection status:

Near threatened

Odd fact: They are not easily deterred but if scared off, they will return in larger numbers.

5

SAND TIGER SHARK

(*Carcharias taurus*)

Average life span:

15 years or more

Size: 6.5 to 10.5 feet

Weight: 200 to 350 pounds

Protection status:

Threatened

Odd fact: Sand sharks are very popular in public aquariums and thrive well in captivity.



Minimize Your Chances of a Shark Encounter

Ralph Collier, president of the Shark Research Committee, gives guidelines to minimize chances of an attack.

- > Never use the ocean alone.
- > Get certified in advanced CPR.
- > Carry anything that can be used as a tourniquet.
- > Be aware of your surroundings. "If you see fish jumping out of the water, they're not doing that to entertain you. Something is chasing them so you might move closer to the beach."
- > Listen to your body. "If you suddenly feel uneasy, like a wave of anxiety coming over you, get out of the water slowly and calmly. I can't tell you how many times people have said 'I got this chill but talked myself out of it then was hit by a shark.'"
- > Don't wear jewelry in the ocean. "If it shimmers, if it makes a flash, that's what fish do and sharks might be attracted to it."
- > Don't wear anything with bright, contrasting colors in the ocean. "Something like that might attract the shark because now it's curious."
- > Never go in the ocean at night. "Sharks migrate; they move in toward land at night whether it's an island or coast. It's hard enough to see into the water in the daytime but at night you can't see anything, but it can see you and you stand out like a well-lit object."

PHOTO BY ROBBY BARTHELMESS

6

BLACKTIP SHARK

(*Carcharhinus limbatus*)

Average life span:

15 years or more

Size: 9.5 feet

Weight: 250 pounds

Protection status:

Near threatened

Odd fact: They can tolerate low salinity and can be found in river entrances and swamps. They stay very close to shore.

7

NARROW-TOOTH SHARK

(*Carcharhinus brachyurus*)

Average life span:

20 to 30 years

Size: 11 feet

Weight: 500 to 700 pounds

Protection status:

Near threatened

Odd fact: It is the only shark largely found in temperate (above 54 degrees) rather than tropical waters, mostly surf zones around the world.

8

HAMMER-HEAD SHARK FAMILY

(*Sphyma* spp.)

Average life span:

20 to 30 years

Size: 13 to 20 feet

Weight: 500 to 1,000 pounds

Protection status:

Not threatened

Odd fact: Hammerheads use their wide heads to pin stingrays against the sea floor.

9

SPINNER SHARK

(*Carcharhinus brevipinna*)

Average life span:

10 to 15 years

Size: 6 to 10 feet

Weight: 100 to 200 pounds

Protection status:

Not threatened

Odd fact: Its name comes from its method of attacking schools of fish, by charging in and spinning while biting at the fish.

10

BLUE SHARK

(*Carcharhinus glauca*)

Average life span:

20 to 30 years

Size: 7 to 11 feet

Weight: 200 to 400 pounds

Protection status:

Near threatened

Odd fact: 10 to 20 million Blue sharks are killed each year for their skin, liver oil and shark fin soup.

01:00

Story and Photography by Kevin Estela

the Modern Minuteman



GRAB YOUR GEAR AND GO AT A MOMENT'S NOTICE

THE MINUTEMEN OF THE AMERICAN REVOLUTION WERE ESSENTIALLY A RAPID RESPONSE FORCE AND COULD BE READY AT A MOMENT'S NOTICE, HENCE THEIR TIME-SENSITIVE NAME.

Almost 240 years later the nation is very different. Commerce, technology and communication have all changed. Now, we face different issues and threats but the vast majority of the population has become reliant on others to provide for their security. As history has shown us, sometimes waiting for the government means risking misery or even death.

Where has our self-reliant character gone and how can we get it back? Here's our guide to get you started.

the
**Modern
Minuteman**



***"AS HISTORY HAS SHOWN US,
SOMETIMES WAITING FOR THE
GOVERNMENT MEANS RISKING
MISERY OR EVEN DEATH."***

THE MINUTEMAN PACK

The minutemen needed to grab their gear and go as expediently as possible. They did not have the luxury of packing everything they wanted, and their gear needed to be general purpose. Today, when most trips are in the planning stage, an empty pack is filled with the gear needed on a trip-by-trip basis. The pack is loaded before and unloaded after each trip. There may be days, weeks or months in between trips when we will need to repack our gear, but what if we plan on keeping our packs loaded at all times?

What is the benefit of always being ready to pick up and leave? We can have recreational outings that double as emergency training.

Many readers likely have a small personal survival kit. Fewer may have a small bottle, canteen kit or maybe a belt pouch with contents that rarely vary. This kit is the one grabbed for informal jaunts into the outdoors and it extends survivability beyond pocket carried gear. The items selected for this Every Day Carry (EDC) load out should be based on realistic needs. For an EDC kit, these are needs that might arise any day.

The philosophy of keeping gear loaded should apply to all kits including the more extensive backpack. We would never think of packing a pocket emergency or pocket survival kit daily, why not treat our larger packs a similar way? Some aspects of the minuteman pack are meant for year-round use and others are season-specific. Items meant to remain in the pack year-round can be identified with unique tape or paracord marking. These include camp support gear like a hatchet, saw, E-tool, sleeping provisions like a camp pad, tarp and bivy sack, cooking gear including a stove, pot, basic mess kit and rain gear that is a must year-round. Seasonal equipment is swapped out to address the environment.

During winter seasons, the level of insulation from the cold will augment the clothes carried as well as the rating of your sleeping bag. Depending where you are traveling, you may also find the need to add extra environmental protection like bug dope, sunscreen and mosquito netting. The idea behind pack readiness is to never establish the concept of being done. The minuteman pack is always a work in progress and if you are carrying everything when out of season, you are carrying



excess. What is the value of a bag ready for 20 degrees below zero in the middle of the summer when a bag good for 20 degrees above zero is already warm enough?

HOW TO PACK?

Your pack should be loaded to address priority of needs. You should have a trauma kit to address accidents if you are carrying an axe, firearm or any tool that can cause injury. This should be accessible with one hand with the fewest number of deliberate movements as possible. This means it should be packed toward the top of the pack or where it can be reached on the exterior rapidly. Rapid warming items like fire starters should be packed accordingly too.

On the other end of the urgency spectrum, your sleeping bag should be placed at the bottom of your pack since rushing to reach it while setting up camp is unlikely. Similarly, boiling

(clockwise from top)
Always necessary is a means to cook a meal and collect and purify water.

A small trauma kit that can be grabbed with one hand can save your life.

Multiple layers of clothing is often needed, from warm hats to sturdy work gloves.

The Minuteman Challenge

I created The Minuteman Challenge last year. It starts off with stating the purpose of training. The current state of affairs in America may mean civil unrest, natural disaster or, worst case scenario, a large-scale terrorist attack. The Minuteman challenge better prepares participants to respond quicker and be better prepared with a kit to handle most needs. From here, participants share the contents of their kits with one another through e-mail, social media or in person. A date is established and participants each pick locations where the campout

could be held. A person is selected to pick the location and keep it secret until 24 hours prior to the weekend. Participants must not change the contents of their pack and use it as is. Once the campout is over, a group "after action report" (AAR) is done and in this debrief the group explains what worked, what didn't and what they want to add to make their pack better. The process is repeated over more trials until the contents of the pack are to the liking of the individual. This challenge can be done repeatedly over the course of a year in various seasons.

Being ready to go at a moment's notice means having the right gear packed and available 24 hours a day, 365 days a year. This may mean a variety of packs stored in different places: home, car, work.

the Modern Minuteman

water and preparing food is rarely rushed and these items can be placed centrally in the pack. Base how you carry your gear around urgency.

The process of assembling this pack is never ending and the pack can always get better with further refinement. Better gear can be acquired and, as skills improve, less will be carried. Rather than focusing on the weight initially, as so many backpacking manuals obsess over, address needs first then consider weight. Focusing on the weight rather than the needs it should address can result in failure. Satisfy the basic needs of the camp, then cut weight.

WHAT TO WEAR

Obviously, you don't need to sleep in your clothes and boots to be completely ready at a moment's notice, but how long would it take you to be completely prepared and get out of the door on a random Tuesday at 3 a.m.? If there has been an earthquake or a tornado is bearing down on your house 15 minutes is a



long time. Having your minuteman clothes near your bed or in an empty nightstand drawer will create a specific place near you to keep your clothes. They can be accessed in seconds upon waking up and you can be fully dressed steps from your bed.

Consider a pair of sturdy cargo-style pants with multiple pockets, two layers of shirts, a light rain-proof jacket, socks and rugged boots. Going the extra mile in preparedness, having your pockets filled with general gear you feel you might need — knife, flashlight, first-aid kit, extra car keys — will greatly reduce your lag time and increase your efficiency.

SAFETY IN NUMBERS

The Modern Minuteman Challenge (see sidebar) is not about perfection but it does help the preparedness-minded individual realize his or her potential. Through impromptu training like this, other realities become apparent. While survival is possible in the short term, survival long term is more comfortable and easier when a group is involved. Heavier camp gear can be broken down and parceled out to members of a party to lighten the load an individual would otherwise have to carry. Group dynamics are refined through training and analyzing actions together. Each member gets stronger and the group grows stronger as a whole.

BE READY

Much like the American Revolution, the need to be Minuteman Ready is inevitable. Civil unrest as in the aftermath of events in Ferguson and Baltimore demonstrate the need for mobility. Natural disasters like Hurricane Katrina and Superstorm Sandy also point to the importance of bugging out if time allows.

A person's strongest prep is generally at home considering how much time is spent there and considering it is usually the location of all the equipment owned. The home is not always safe though, and in some circumstances, the need may arise to be somewhere else with all due urgency. As current events have exposed our weaknesses as a culture, our preparation and training can demonstrate our strengths. Practice Modern Minuteman Training because you never know when you'll need to be up and out of the house. ■■■

“CIVIL UNREST AS IN THE AFTERMATH OF EVENTS IN FERGUSON AND BALTIMORE DEMONSTRATE THE NEED FOR MOBILITY.”



Food and water sustain life. A simple mess kit and fuel source will mean the difference between life and death.

01:00



the
**Modern
Minuteman**

Building The Perfect Pack

Story By **Dana Benner**

» WHEN YOU PUT YOUR PACK TOGETHER YOU NEED TO KEEP IN MIND THAT YOU WILL BE CARRYING THIS THING. EXTRA ITEMS THAT ARE NOT NEEDED ADD WEIGHT SO THEY SHOULD BE LEFT AT HOME.

Food

Humans can survive for days without food, so this is not the top priority, but it is always smart to include food in your pack (remember, we're planning for the unknown). Open any outdoor magazine and you will see pages of ads showing "survival food." This food is for the long-term disasters, and it has its place but that place is not in your survival pack.

Look for packages of dry soup, dried fruit, and nuts. All of these items will keep you alive. Stay away from food with high salt content. Salt will dehydrate you, thus making you need more water, which may or may not be in short supply. With a little careful planning your pack will have the appropriate food that will keep you alive at a fraction of the cost and space.

Water

People never drink enough water. Carrying water with you wherever you venture is extremely important. Dehydration will kill you and put those around you in danger. Whenever I go out, I always carry a minimum of two quarts of water in aluminum water bottles. I do not use plastic water bottles and I do not buy water at the store for this purpose. An aluminum water bottle allows you to boil questionable water before drinking. I also carry a small bottle of water purification tablets I use to treat water, especially if I do not have a means to boil.

Fire

Fire allows you to boil water and cook food. Fire will help keep you warm and will make you visible to those people searching for you. Fire will also calm you down in what could be a serious situation.

We all need to carry multiple ways to start a fire. In my pack I carry wooden kitchen matches, butane lighters, regular paper matches and a friction fire starter. These items are all cheap to obtain and they beat rubbing two sticks together. The one thing I do not do is keep them all together. I usually carry one butane lighter in my pocket, one in my pack and another one in my first-aid kit. This is just in case I get separated from my pack, or if one fails there are always others. Both the kitchen and paper matches are put in re-sealable plastic sandwich bags and put in the pack. To get a fire going I carry cotton balls soaked in petroleum jelly and store them in plastic pill bottles. I also carry a product called "Firestarters" put out by Lightning Nugget. These small blocks of paraffin and sawdust will light even the wettest wood and will burn for a minimum of 15 minutes.

Shelter

I always carry cordage of some sort in my pack along with a heavy bladed knife and/or a small hatchet. The knife or hatchet can be used to chop the wood you will need to build the shelter (and for chopping firewood) and the cordage will be used to lash it all together. Your cordage can be paracord or you can do like I do and carry a clothesline, which I bought at a bargain store. I also carry extra bootlaces and a small spool of fishing line, both of which can be used in a pinch.

Miscellaneous Items

I carry a large sheet of heavy-duty aluminum foil. The foil, which folds up nicely and weighs almost nothing, can be used both as a way to signal for help (reflective mirror) and can be made into a bowl in which to boil water and to cook food. I carry a whistle which will allow me to signal people searching for me. I carry a first-aid/survival kit, insect repellent, and a roll of duct tape.



PHOTO BY HENRY DEKUYPER



Waterproof GEAR

Slipping into the water because of a missed step or an unexpected change in the currents is no way to experience the great outdoors. Some things, like torrential rain, a floundering life raft, or a catastrophic flood are completely out of your control. Even if you are confidently prepared for every survival contingency, it won't matter if your gear gets completely soaked. Wet matches, wet socks, wet bandages, or wet sleeping bags won't help whatever situation has befallen you. Keeping your gear stored and transported in a dry bag will greatly increase the usability of your gear and, more importantly, your chances of survival. But these aren't your regular dry bags.

KEEP YOUR GEAR DRY WITH WATERSHED'S ZIPDRY WATERPROOF BAGS

Story by **Phil Tobin** | Photography by ASG Staff



(left) The sheer size of the Patrol Pack is large enough to hold most anything you would need for a two- or three-day adventure in the back country or an unplanned emergency situation. (above) The Chattooga is Watershed's most popular duffel because of its size and ability to easily carry a lot of gear.

For years, cheaply made roll-down sacks were the only choice available to keep your gear dry. Watershed developed not just a standard dry bag, but it revolutionized the concept of keeping gear dry by reinventing the very bag itself, from the top closure down to the bottom seams.

CLOSURE

Similar to a standard freezer bag, the Watershed bags lock shut, keeping out water and moisture, but also making it completely air tight. The bags don't need to be rolled over, and even under the pressure of three hundred feet of water, the ZipDry seal will maintain its integrity. To release the strong seal, insert your thumbs into the straps and slide your hands past each other (don't pull away, as it will not give).

FABRIC

Another element of the previous generation of "dry" bags that tended to fail was the fabric itself. A cloth fabric coated with a layer of PVC became stiff in the cold, deteriorates in the sun, and eventually cracks and leaks. The 420-Denier Cordura nylon ripstop fabric of the Watershed bags are coated in a polyurethane that maintains its flexibility at all temperatures and is five times more resistant to abrasions and the elements than standard PVC. The fabric is UV and chemical-resistant, and according to Watershed, it will never crack, fade or lose its flexibility.

SEAMS

Instead of sewing or gluing the seams together, Watershed uses radio frequencies to weld the layers of fabric into a single piece of material. The handles and buckles are stitched to military specifications (and not just because these bags are used by the U.S. military).

Watershed offers a variety of products broken down into two categories: recreation and military. Duffel bags, backpacks, boat and kayak bags, and smaller urban packs round out the recreation portion (they also feature the Torpedo gun case that will keep your rifle dry—and it floats), while the military side offers larger bags specifically to hold an assortment of gear, including three larger weapons bags.

PATROL PACK

With a capacity of 4,500 cubic inches, this 27-inch-tall pack comes from Watershed's military line. It has removable backpack straps and waist belt. There are compression straps on the sides and back to keep the gear stowed tightly. The 21-inch-wide opening (which is three inches larger than the bag's body) provides easy access to the entire pack. Its most important feature is that the pack, when sealed, is buoyant enough to float not only your gear but you as well. On the outside is an inflation tube to add more air once in the water. It comes in three colors, alpha green, black, or Multicam and weighs just over four pounds empty.

THE CHATTOOGA

According to Watershed, this is one of its most popular and versatile duffel bags. At 20 inches long and 12 high, it holds an impressive 1,800 cubic inches of gear and tips the scales at just under two pounds. Compression straps keep the 17-inch ZipDry seal tucked down while in transport (on the sides and top). The handles are rugged and incorporated into the strap material at their bases are lash points. Available colors are orange, blue, coyote, black, clear, and Multicam.



A. To increase the air capacity while being used as a flotation device, the inflation valve and tube is a handy addition. It tucks away securely when not in use. **B.** While it can be used as a backpack, the straps and waist belt are removable. **C.** It doesn't matter how large the bag or its opening is, the thumb straps provide enough leverage to slide apart the ZipDry seal. **D.** The compression straps (there are two across the top as well) keep all of the gear snug. **E.** The extra tie-down buckles on the sides and ends provide a sense of security when lashed to a boat, kayak or life raft. **F.** Its trademark ZipDry enclosure can be opened and closed as easily as a typical freezer bag (though there are instructions on Watershed's site).

drybags.com | MSRP: Patrol Pack: \$323.33; Chattooga: \$120

urban.08.15

Weather on the Water

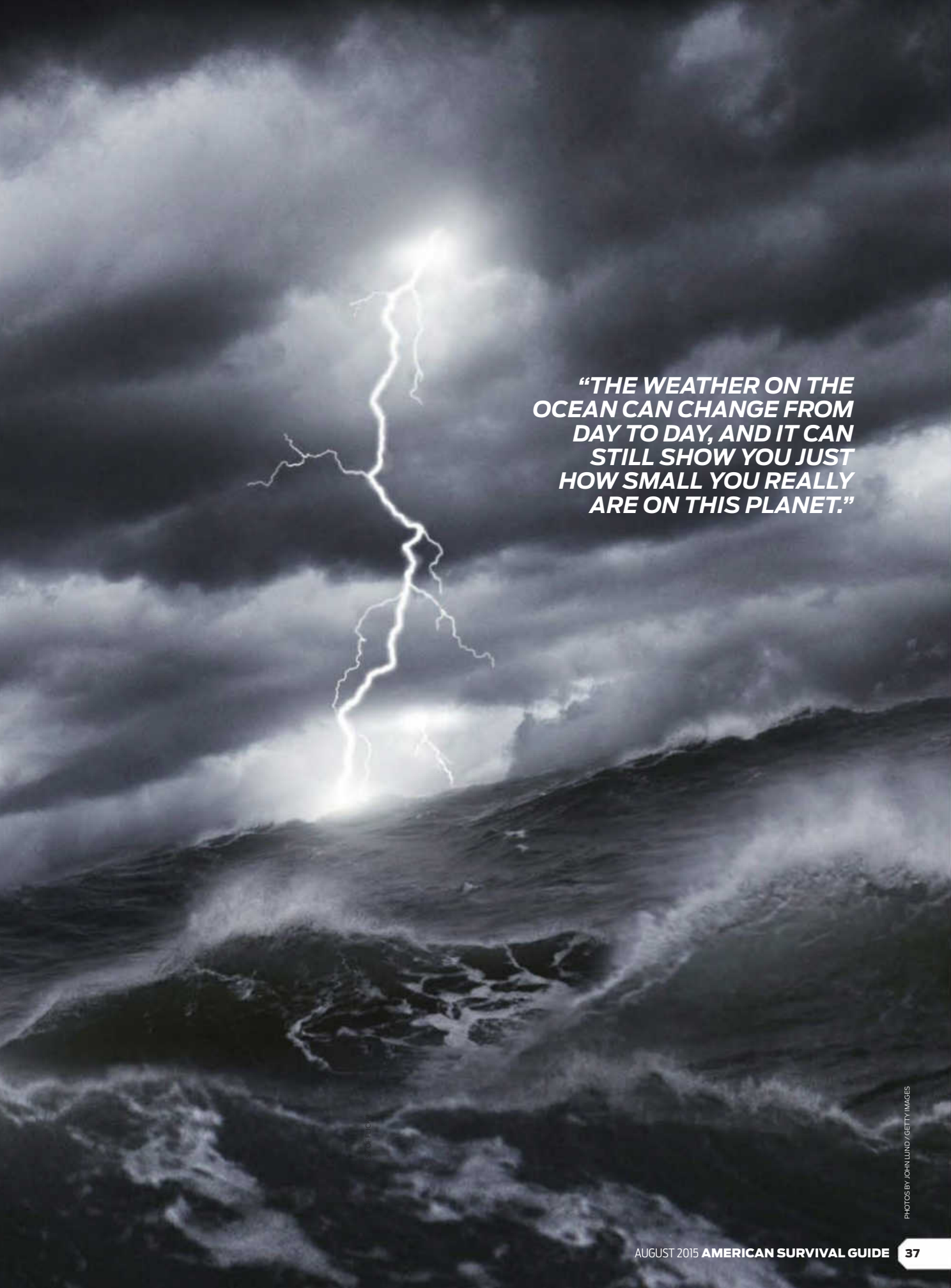
**KEEPING A
WEATHER
EYE WHEN
MOTHER
NATURE'S
BLOWS IN**

Story by **Larry Schwartz**

YOUR SMALL BOAT IS AN ISLAND IN A VAST SEA. The horizon stretches to infinity all around you. Your future — whether you will cruise in relative comfort or be tossed on the waves like a cork — depends solely on the weather. Sun, rain, wind... a typhoon... how will you know what to expect? The weather on the ocean can change from day to day, and it can still show you just how small you really are on this planet.

Whether you are out on the ocean, a lake, a pond, or a river, knowing what the weather will do is one of the more important things you need to know about your environment. A sudden change in the weather, like a storm blowing in when you are on land, can make things inconvenient but rarely will it make things dangerous. But on the water, heavy winds or rain can turn a day on the water into a life or death situation.

Fortunately, mankind has known for centuries how to predict what the weather will do based on what we see in nature, from the birds and animals and clouds. As time progressed, early scientists who studied the weather found that as the weather changed so did the pressure and humidity. In the 1600s they devised tools like barometers, thermometers, anemometers, and hygrometers that could measure these values, and they have been used to the current day. With the advent of the Internet and the information age we can get the same information on our phones that the television weatherman does. Fortunately, each of these three eras have lessons to teach us about how to interpret the weather.



**"THE WEATHER ON THE
OCEAN CAN CHANGE FROM
DAY TO DAY, AND IT CAN
STILL SHOW YOU JUST
HOW SMALL YOU REALLY
ARE ON THIS PLANET."**



If the only clouds are high in the sky, it is a strong indicator that good weather is here to stay for a while.



A ring around the moon is a good indicator of rain or snow.



Red sky in morning, sailors take warning; red sky at night, sailors delight!

WATCH THE NATURAL WORLD

Observation of the skies and sea birds and animals gave ancient mariners and shore-based fishermen insights into what the weather would do. These same observations can be used by today's mariners and fishermen to forecast the weather. For example:

- > If the birds are flying high in the sky, fair weather will stay around.
- > Birds tend to take refuge as a storm approaches, so if you notice them roosting when they were flying before, a storm may be coming.
- > A ring around the moon at night, caused by moisture in the air, means that you will have rain or snow sometime in the next few days.
- > The higher the clouds are in the sky the fairer the weather will be.
- > Long, streamer-like clouds (cirrus clouds) indicate bad weather during the next 36 hours.
- > Altocumulus clouds, the ones that look like fish scales, indicate bad weather will be there within a day or two.
- > Tall, tower-like clouds (cumulus clouds) indicate showers later in the day.
- > Rain clouds (nimbostratus) that are hanging low and dark in the sky mean that rain will happen soon.
- > Rows of small, puffy clouds (cirrocumulus clouds) in a row indicate that cold weather is coming.
- > Winds which blow from the east can indicate an approaching storm front; Winds blowing in the opposite direction usually mean good weather.
- > Winds coming from the opposite of their normal direction often warn us about severe weather approaching.
- > If the sky is red at night, the next day will likely be clear; if red in the morning, expect rain by the end of the day; remember, "Red sky at night, sailor's delight; red sky in morning, sailor take warning."

Clouds don't have to be dark to drop rain on you, like this cumulonimbus dropping rain on Grand Isle in Louisiana.

A portable weather station like this combination thermometer, hygrometer, and barometer is a useful and practical tool to have on hand.

FILICKR.COM



Early Scientists

»During the Age of Reason, which started in the early to mid-1600s and extended into the late 1700s, observation of the natural world and all of its aspects grew, as did the value placed on science and the respect given to scientists. It was during this period that the major weather related observations and instruments were first made. The mid-1600s saw the creation of the modern thermometer, barometer, hygrometer, and anemometer which were used to measure temperature, air pressure, humidity, and wind speed and direction. These five components were the basis for all weather research and allowed the scientists of the day to capture the data that would give them a better understanding of the world around them. It was from these studies that we found how high and low pressure fronts affected weather and how winds flowed as currents across the surface of the globe. The knowledge we gained here you can use yourself include:

- Strong winds indicate high pressure differences, which can be a sign of advancing storm fronts.
- Low air pressure, which is due to the temperature getting warmer, brings rain.
- High air pressure, which is from colder temperatures making the air denser, brings clear skies and good weather.
- Major weather systems often move from west to east.
- Prevailing weather systems move from west to east, but individual weather patterns in your area may not, due to regional phenomena.

WIKIMEDIA.ORG

What the Barometer is Telling You

The following barometer reference card, taken from "Skills for Taming the Wilds" by Bradford Angier, will assist you in your short-term weather forecasting forays (Keep in mind that these measurements, and what they indicate, are only representative within the U.S. and Canada).

BAROMETER	WIND	WEATHER
High, steady	SW to NW	Fair with little temperature change for one to two days
High, rising rapidly	SW to NW	Fair with warmer weather and rain within two days
High, falling rapidly	E to NE	Summer: rain in 12 to 24 hours Winter: snow or rain with increasing wind
Very high, falling slowly	SW to NW	Fair, with slowly rising temperatures, for two days
High, falling rapidly	S to SE	Rain, with increasing wind, in 12 to 24 hours
High, falling slowly	S to SE	Rain within 24 hours
High, falling slowly	E to NE	Summer: light winds, fair Winter: precipitation in 24 hours
High, falling slowly	SW to NW	Rain within 24 to 36 hours
Low, rising rapidly	Shifting to W	Colder and clearing
Low, rising slowly	S to SW	Clearing soon and fair for several days
Low, falling slowly	SE to NE	Rain for one or two more days
Low, falling rapidly	E to N	Northeast winds heavy with rain or snow, followed in winter by cold

"OBSERVATION OF THE SKIES AND SEA BIRDS AND ANIMALS GAVE ANCIENT MARINERS INSIGHTS INTO WHAT THE WEATHER WOULD DO."

Weather Forecasting in the Information Age

»Weather forecasting agencies and organizations around the world now use a mix of more than a dozen sophisticated weather prediction models that are often tailored to how weather behaves in their part of the globe and in their region of a country. These models are still based on basic observations and they are applied to terabytes worth of current and historical weather data to predict weather patterns and the paths of storms.

Fortunately for today's mariner and fisherman we don't have to wait to see the results of this analysis. We can now get it in a number of different forms and on a number of different platforms.

The Internet has several weather-related websites which can give you the weather for your location on land. This can also help you forecast the weather if you are near one of those land-based locations, like being off shore of a major city.

Every smartphone platform has weather apps, often provided by the weather-related websites, which you can use to get current weather information if you are in range of a signal to access the Internet while you are on the water.



Handheld VHF radios provide the same features as shipmounted radios but with the advantage of being able to use them in smaller vessels without bulkheads where they can be installed or when ashore.



A permanently fixed VHF radio is recommended for installation on all boats, if for no other reason than to be able to listen the weather updates that are broadcast from the U.S. Coast Guard and NOAA on channels 16 and 22A.

PHOTO COURTESY DPTI/SA GOVAU

- > A gray dawn with foggy valleys indicates — surprise! — a clear day ahead.
- > A hazy ring around the sun or moon in summer is a reliable sign that the weather pattern is in for a change, usually bringing rain.
- > A heavy morning or late-evening dew (or frost in cold months) may indicate 12 hours of continued good weather.
- > Winds from the south tend to bring rain (old adage: "Wind from the south brings rain in its mouth"), while winds from the north are associated with clear weather. On a similar note, if the wind has been blowing for the past few hours, rushing clouds along, and then suddenly dies, you are in for a major storm.

10 TYPES OF CLOUDS



Cirrus: Quickly moving fair-weather clouds can lead to a change in the weather on the following day.



Alto cumulus: Result of warm, humid air. Thunderstorms are likely.



Altostratus: Gray or bluish clouds, blocking the sun. Mostly dry but can cause moisture buildup.



Stratocumulus: Rarely rain clouds, these usually point to dry weather.



Stratus: Fog-like cloud produces a fine mist, sometimes a drizzle.

CLOUDS ATLAS

PHOTO COURTESY WIKIMEDIA.ORG



High Troposphere	Medium Troposphere	Low Troposphere	Towering vertical & Other Accessories clouds	Surface based
Ci sup Cirrus spissatus Ci fib Cirrus fibratus Ci unc Cirrus uncinus Ci ne Cirrocumulus nebulosus Ci fib Cirrocumulus fibratus Ci neb Cirrocumulus nebulosus	Al fib Alto-cumulus fibratus Al cal Alto-cumulus calvus Al l Alto-cumulus lenticularis Al Altostratus	Cu fra Cumulus fractus Cu hum Cumulus humilis Cu med Cumulus mediocris Sc Stratocumulus St Stratus Ni Nimbostratus	Cu con Cumulus congestus Cb cal Cumulonimbus calvus Cb inc Cumulonimbus incus Al Albus Mam Mammatus Pil Pileus	St Stratus St fra Stratus fractus Fo Fog

Realized by Antonio Ciccolini 2010/2011

MODERN FORECASTING

The best way to get current weather reports and forecasts while on the water is with a VHF ship-to-shore radio which can pick up U.S. Coast Guard and NOAA weather reports. These radios come in either handheld versions or versions that are installed on your boat or vessel. These provide the most current information and also provide information about areas on the water rather than areas on land.

WHAT'S YOUR OUTLOOK?

To get ready to do your own weather forecast-

ing while on the water, pull out that ancient high school science textbook and brush up on air pressure, humidity, and temperature. Next, work on being more observant about what is going on around you in the outdoors and the animals that live there. Then download the weather apps for your smartphone. Finally, get yourself a handheld or vessel mounted VHF radio so you can get the Coast Guard or NOAA weather channel. With time and attention you too will be able to know what the weather is going to do without having to watch the evening news the night before. **AW**

Knowing the names for the different types of clouds, where they normally reside in the sky, and what they mean in terms of changes in the weather is often the key to successfully doing your own forecasting while on the water.



Cumulus: Dry weather clouds can produce thunderstorms at high altitude.



Cumulonimbus: With these clouds, there is an extreme weather alert. Rains and thunderstorms.



Nimbostratus: Low-layer dark clouds almost always bring with them rain.



Cirrocumulus: Light heaps of clouds indicate a cold front approaching and perhaps light rain.



Cirrostratus: A pale veil of clouds blanket across the sky with rain within a day or so.

08.15. story of survival

Story by **Bryan Dumas**

Photography Courtesy Edgar Harrell Collection

From Flagship to Infamy

THE DOOMED VOYAGE OF



"SHE WAS A GRAND DAME OF SHIPS, BUT SHE WAS ALSO A WARSHIP..."

The men of the Marine Guard aboard the USS *Indy* pose for a group picture under the Number One turret. Edgar Harrell is in the middle row, directly under the center barrel.



THE USS INDIANAPOLIS

The USS *Indianapolis* was the pride of the American Navy. When she was launched in 1931, she epitomized the power, determination, and drive of American ingenuity and spirit. The *Indy Maru*, as she was affectionately called, represented the latest in naval and warfare technology. As a “treaty cruiser” — she was built under the terms of the Washington Naval Conferences of the 1920s — the *Indianapolis*, a Portland-class heavy cruiser, was 610 feet in length (half the height of the Empire State building, also completed in 1931) and 66 feet at the beam. *Indy* cruised at 32 knots and boasted nine 8-inch guns in three turrets. She was fast and she was powerful. She was America. So much so that President Franklin D. Roosevelt adopted the *Indy* as his official “Ship of State.”

U.S. FLEET’S FLAGSHIP

In modern-day parlance, the USS *Indianapolis* was in every way a precursor to Air Force One. Roosevelt chose the *Indy Maru* as his official ship and used her on every transatlantic and South American cruise. She entertained royalty and other world leaders on her grand quarterdeck (a hallowed place reserved for admirals, captains and other dignitaries, and where enlisted men were not allowed to walk on the teakwood deck with shoes on). In 1936, the *Indianapolis* brought Roosevelt to South America on his Good Neighbor tour and eventually to Buenos Aires for the Pan American Conference.



Edgar Harrell’s USMC portrait, taken in 1945 before the sinking of the USS *Indianapolis*.





“MY LAST VIEW OF THE INDIANAPOLIS WAS BOW DOWN, FLAG STILL FLYING ON THE STERN, AND MEN JUMPING INTO THE TURNING SCREWS. THEIR SCREAMS STILL HAUNT ME.”

(top) The USS *Indianapolis* in action, providing covering fire for the landing craft invading Saipan in June 1944.

(bottom) Under Lieutenant Commander Mochitsura Hashimoto, this is the Japanese submarine, the I-58, that torpedoed the USS *Indianapolis*.

She was a grand dame of ships, but she was also a warship, and in that capacity the *Indianapolis* served as the flagship for the Scouting Force, U.S. Fleet during the 1930s. As the ominously dark clouds of war loomed in the Pacific, the U.S. Navy was reorganized and, as a show of force toward the Japanese, the Fleet was moved from the West Coast to Pearl Harbor, Hawaii. The *Indy* followed and became Vice Admiral Wilson Brown’s flagship for Task Force III.

ESCAPED PEARL HARBOR

For reasons shrouded in mystery, the USS *Indianapolis* was not in port at Pearl Harbor on the morning of December 7, 1941. In

Edgar Harrell’s book, “Out of the Depths” — himself a survivor of the *Indy*’s tragic sinking—he retells the account of Daniel Brady, a seaman second class aboard the *Indy*.

According to Brady, the ship was docked across from battleship row and most of the men were ashore for liberty leaving about 1/3 of the crew aboard. On the morning of December 5th, the remaining crew was told to get the ship ready to leave in less than an hour, a nearly impossible task.

“Most of our crew,” Brady says, “Were ashore and we could never recall them in time on such short notice. Soon, 50 Marines in full battle gear came aboard.... Next came truckloads of food and vegetables, which were dumped unceremoniously on the bleached, white, teakwood quarterdeck!”

Within the hour the *Indy* was at sea having left behind most of her crew, and on her way to conduct drills some 700 miles southwest of Hawaii. She was spared the wrath of the Japanese assault on Pearl Harbor.

The *Indy* saw her first taste of combat in February 1942 in a small fight south of Rabaul, New Britain, and again near New Guinea. By March of ‘42, she returned to Mare Island, San Francisco for a refit to include search radar. Instead of sailing back to the South Pacific, the *Indianapolis* made her way north to help stop the Japanese invasion of the Aleutian Islands chain. She participated in the shelling of Attu and Kiska. The spring of ‘43 found the *Indy* back at Mare Island for

another overhaul to get her ready to become the flagship of Admiral Raymond A. Spruance and the Fifth Fleet.

As the flagship for the Fifth, the *Indy* participated in Operations Galvanic, Flintlock, and Forager lending fire support for Marines landing at Tarawa, the Marshall Islands, and Guam, Saipan, and Tinian respectively. She made it through the Battle of the Philippine Sea (known in Navy circles as the Marianas Turkey Shoot) without a scratch and was even credited with shooting down a Japanese torpedo plane. After the Marianas, the *Indy* set sail for Iwo Jima. According to Harrell, “The *Indy*’s mission was simple: Bombard [the Japanese]!” By March 1945, the

Indy would find herself joining the pre-invasion bombardment of Okinawa. As fate would have it, the battles at Okinawa would set the *Indianapolis* on a path toward fame and infamy.

KAMIKAZE!

Early in the morning of March 31, 1945, while shelling Okinawa, a solitary Japanese kamikaze broke through the clouds and made its way for the *Indy*. Somehow making its way through a hail of anti-aircraft fragments, the plane crashed into the port side of the enormous ship causing little damage itself, but before it hit, the plane had released a bomb. According to Harrell, "the bomb tore through the deck armor, the mess hall, the berthing compartment below, and the fuel tanks in the lowest chambers before crashing through the bottom of the ship and exploding in the water underneath us." Crippled, the *Indy* settled slightly at the stern and listed to port. Nine sailors were dead. But, the *Indianapolis* refused to go down. In fact, she sailed under her own power all the way back to San Francisco for repairs.

INDY AND THE MANHATTAN PROJECT

As fate would have it, the top-secret Manhattan Project in New Mexico was nearing completion and they needed a ship to transfer the fruits of their labor, the enriched uranium-235 for the atomic bombs, to the South Pacific. The closest ship was the *Indianapolis*. On July 16, 1945, the *Indianapolis* left Mare Island on a record breaking crossing of the Pacific to Hawaii—2,405 miles in just seventy-four hours—with her secret payload. A six-hour turnaround in Pearl and the *Indianapolis* continued on to Tinian. In total, the *Indianapolis* sailed over 5,300 miles in 10 days with an average cruising speed of 29 knots.

After dropping off the atomic bomb components, the *Indianapolis* received orders to begin a three-day sail to Leyte Gulf to join the USS *Idaho* for gunnery practice and a new equipment shakedown before returning to Okinawa. Lacking sonar gear to detect enemy submarines, the *Indy's* Captain, Charles V. McVay III, requested a destroyer escort, but this request was denied. The *Indy Maru* would go it alone. Also, Captain McVay was not told that the Japanese Tamon submarine group was patrolling their route and had already sunk the destroyer USS *Underhill* along the *Indy's* course.



TORPEDOES ON THE STARBOARD SIDE!

Shortly after midnight on July 30 the USS *Indianapolis* was cruising at 17 knots in a moderate sea with poor visibility never knowing that lurking silently beneath the waters the Japanese submarine I-58, commanded by Lt. Cdr. Mochitsura Hashimoto, had detected what he believed to be a large battleship, possibly of the *Idaho* class. I-58 had the *Indy* lined up for the kill and Hashimoto calmly waited until he had the perfect shot. He didn't want to miss. He launched six torpedoes. Three found their target.

(top) Oil-soaked survivors needed immediate treatment as soon as they were rescued. The oil, mixed with the salt water and baked by the sun caused serious skin injuries.

(bottom) Some of the survivors were transported to hospitals on Guam by the USS *Tranquility*, a hospital ship. They arrived on August 8, 1945.

Harrell recalls the moment the torpedoes struck.

"The first torpedo pierced the *Indy* on the forward starboard side about forty feet in front of number 1 turret, where I slept. The concussion jarred me instantly to my feet. In the time it took Commander Hashimoto to say, 'Fire one... fire two,' the second torpedo hit around the midship, forward of the quarterdeck, somewhere in the close vicinity of my Marine compartment. Then, a few seconds later, a third explosion rocked the ship. It was the ammunition magazine underneath me. The explosion blew all the way through the top of turret number one."

The explosions cut out all electrical power and communications across the ship. There was no way from the men in the helm to tell the engine room to shut down so the *Indy*, with nearly 35 feet of her bow completely gone, continued to plow into the seas at 17 knots. The result was that the protective bulkheads were buckling under the ocean's weight, further driving the *Indianapolis* underwater.

Quickly, orders were given to abandon ship and of the 1,197 officers and men aboard, 880 were able to make it into the

"MY LAST VIEW OF THE INDIANAPOLIS WAS BOW DOWN, FLAG STILL FLYING ON THE STERN, AND MEN JUMPING INTO THE TURNING SCREWS. THEIR SCREAMS STILL HAUNT ME."



FOUR DAYS WITH THE SHARKS

A Conversation with *Indy* Survivor Edgar Harrell

"With no one left on the quarterdeck, I stepped over the rail and walked two long steps down the side of the ship that now made a ramp into the water. Then I jumped feet first into the murky, oil-laden ocean. As the ship went under, some boys who were still on board frantically ran up the fantail as it went vertical,

but then it suddenly rolled to starboard. In their panic, several boys blindly jumped off, landing in the four big screws that were still turning, and quickly met their death."

That's how Edgar Harrell, a Marine aboard the USS *Indianapolis*, describes, in his book "Out of the Depths", how he found his way into the South Pacific following the torpedoing of his ship.

ASG had the opportunity to sit down with Mr. Harrell and ask him about his thoughts on the sinking of the *Indianapolis* and how he was able to survive the horrible four days that followed swimming in shark-infested waters.

American Survival

Guide: What did you do to survive the first day/night?

Edgar Harrell: I had my kapok [life] jacket on and I did as much swimming [as I could]. Plus, I helped those who were injured or without life vests. There was never a dull moment. I also helped my Marine buddy, Leland Hubbard, who was severely wounded and only lasted an hour or so.

ASG: After the first night, did you think you'd be in the water for another three days?

EH: No, we were to have met up with the USS *Idaho* the next day for gunnery practice. "While no one knew for sure, we tried to assure ourselves that an

SOS got off the ship. Even if it hadn't, surely the Navy would become alarmed when they discovered we failed to make our intended rendezvous the next day with the USS *Idaho*."

Note: In fact, three SOS calls were made from the *Indy* before she went down. However, in the official inquiry that followed, the Navy claimed no such thing occurred. Also, the Navy had intercepted a message from the Japanese submarine *I-58* reporting that it had sunk a ship in the vicinity of the *Indy*. The Navy ignored all these messages.

ASG: How much did you depend on others to get you through each day?

EH: I swam with my Marine buddy Miles Spooner tied onto me because he



Survivors of the sinking of the USS *Indianapolis* were sent to USN Base Hospital Number 20 located on the island of Peleliu.

chilly, now oil-slicked waters of the South Pacific. *Indy* survivor John (Jack) C. Slankard recalled watching the last moments of the *Indianapolis* and her crew.

"My last view of the *Indianapolis* was bow down, flag still flying on the stern, and men jumping into the turning screws. Their screams still haunt me," he said.

What followed were four days in the open ocean, surrounded by sharks, swimming in oil slicks, beneath the unrelenting sun. Of the nearly 880 men that made it into the sea, only 317 were pulled alive from the ocean four days later. Captain McVay did survive only to be faced with a Court Martial offense of "hazarding a ship" to which he was found guilty and ended a brilliant naval career.

On a crisp fall day in 1968, the *Indianapolis* would claim its last man when McVay took his own life outside his Litchfield, Conn. home. Thanks to the relentlessness of his crew, McVay was exonerated of any wrongdoing in 2000. **ASG**

wanted to commit suicide. We also needed the warmth from each other in the 85-degree water at night.

ASG: Which was worse for you, night or day?

EH: The days were worse because of the 110-degree heat and the extreme thirst. The wind was up more in the days so the water was rough and more hazardous. Of course, the heat in the day caused extreme thirst and some men began drinking the seawater. "In the rough seas some boys accidentally swallowed some of the oil and had been vomiting all night and were now severely dehydrated and convulsing. They gradually became delusional and would thrash the water and

shake violently until they finally lost control of themselves. Most of these never made it through the first day." Plus, during the day, we could see the sharks and hear when they hit a ship-mate. Nights are lonely, foreboding, cold and trying. You can't rest for fear of wondering if you can make it through the night; there was some sense of hope during the day.

ASG: Can you talk a bit about the sharks?

EH: I certainly feared them. We could see the sharks and hear when they hit a ship-mate. "Sadly, some of the hallucinating boys [most from drinking salt water] insisted on swimming away from the group to an island

or a ship they were sure they saw. As they swam, their thrashing often attracted the sharks and we'd hear a bloodcurdling scream. Like a fishing bobber taken under the water, the helpless sailor quickly disappeared. Then his mangled body would resurface moments later with only a portion of his torso remaining."

ASG: What did you do to help you survive?

EH: I never lost hope. I prayed and prayed. I prayed for God's mercy, grace and endurance. I kept swimming and never gave up the will to live.

ASG: Looking back, what are your thoughts about the Navy sending the *Indy* to


Leyte and their subsequent treatment of the sinking?

EH: We were sent out in harm's way unescorted. The Navy knew the Japanese subs were working in those waters. Admiral King knew. The Navy did a fast cover up as to who was at fault. Most of the blame was on CINCPAC, and officials in Guam and the Philippine Frontier. The Navy sent the *Indy* on the mission and failed to protect us, failed to respond to our SOS's. To the men, the *Indy* survivors felt betrayed by our own Navy. We fought the Navy for over 50 years demanding answers. I pray for the strength to continue telling the saga of the sinking of the *Indy*.

Hydration for the Apocalypse

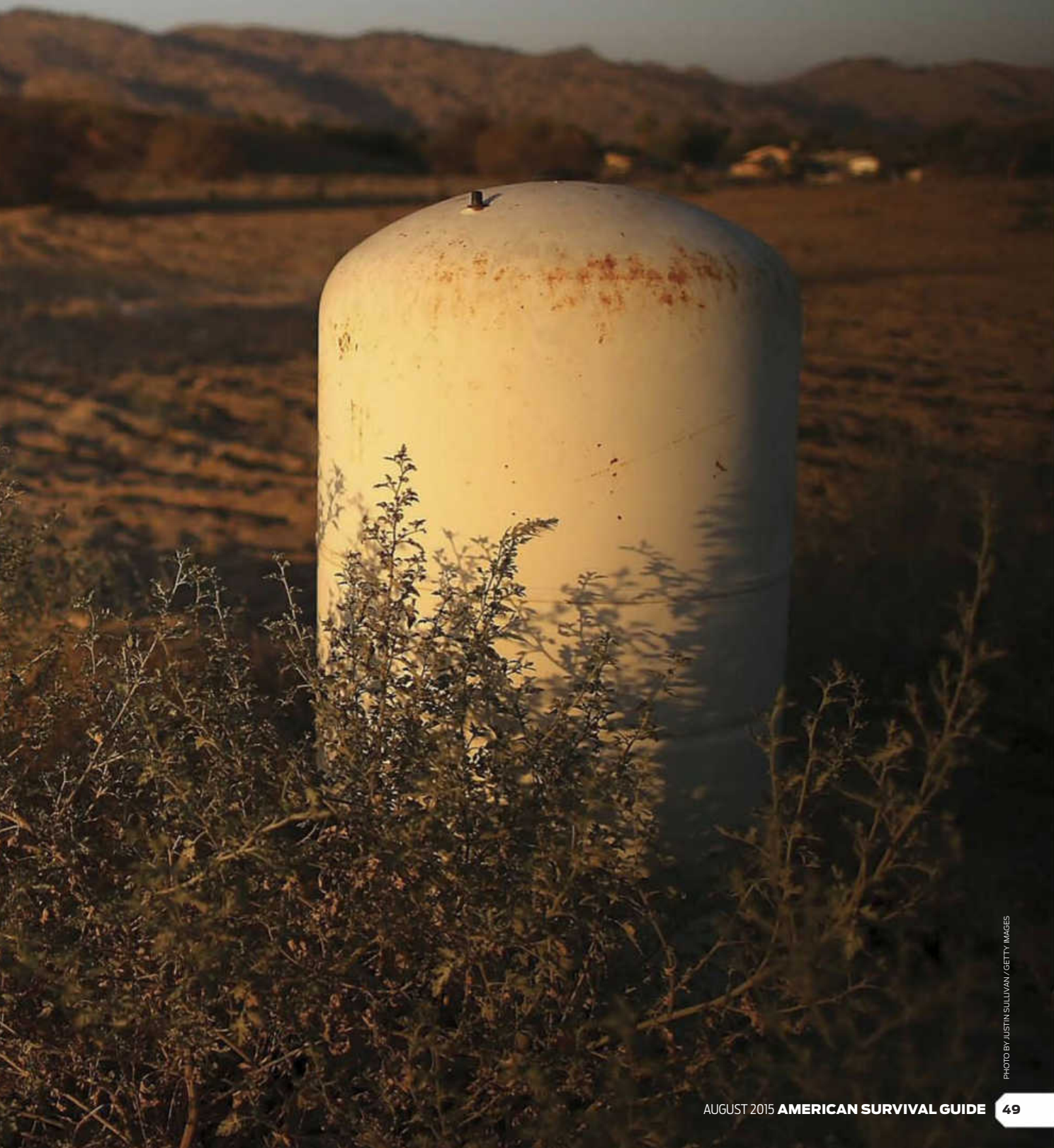
Story by **Ryan Lee Price**

LONG-TERM WATER STORAGE MEANS LONG-TERM LIFE



Day Five. The water just ran out. The water pressure fell to a dribble, and your three-year-old daughter just sipped down the last capful from the reserves you thought you would never need. Quarantine. Isolation. Sequestration. The house has been boarded up and barricaded since Tuesday, the same day the National Guard pulled out. Ten gallons sounded like enough water to last longer than it did, but with a family of five in the heat of a sweltering house, you consumed more than you planned. Without proper water storage, your days are numbered. If only you had better prepared by storing more water you might have been able to stay put and survive the calamity. But now, you've got to move.

***“WITHOUT PROPER WATER STORAGE,
YOUR DAYS ARE NUMBERED.”***



"IF IT IS AN EARTHQUAKE OR FLOOD, THE FIRST THINGS TO GO ARE CITY SERVICES."



THE WATER STORAGE CONCEPT

You never know what will happen — earthquake, tornado, civil unrest, economic and social upheaval that affects the basic services in your area. You can do without food, without a knife or ammunition or a can opener, but the moment the water runs out, you've gone from a serious situation to a dire emergency. In planning your emergency cache, not enough effort can be spent on water storage solutions. This means filters, purifiers, chemical tablets, and even rudimentary water sanitizers like bleach and chlorine. But it also means water, lots of water.

Depending on your personal situation and a lot of different factors like climate and local weather, the average person uses one gallon of water per day, split between drinking, cooking, and hygiene. Sure, drinking and cooking can be modified or eliminated in the factor, but it still must be considered. The Center for Disease Control says that a three-day supply should be kept on-hand at all times but suggests keeping two weeks' worth of water. Three days of water for a family of five is 15 gallons, while two weeks' worth of water is 70 gallons. Indeed that is a lot of water,

Safe Plastics

It is a common myth that water stored in polyethylene terephthalate (PET) bottles leaches Bis(2-ethylhexyl) adipate (DEHA) into the water over time (or exposure to heat or cold). Bottles made from PET do not contain DEHA, according to the U.S. Food and Drug Administration. Though Bisphenol A (BPA) is an issue. Make sure the containers you use to store water for long term are BPA-free. However, the truth of the matter is this: If you're thirsty enough, you'll boil rainwater found in the gutter or squeeze it out of a rain-soaked towel before succumbing to dehydration. You can choose: Die from thirst or drink water that may cause a hormone disrupter over long periods of time (such as BPA).

which will take up a lot of space (think about the space needed to store 14 five-gallon containers of water, the kind you'd find on top of a typical office water cooler). Of course, there are other containers available.

WHERE TO STORE WATER

One of the largest problems with storing water, aside from making it potable, is the physical space limitations a lot of people might have. As mentioned earlier, 70 gallons is a two-week supply for a family of five, and there are many ways to make that possible.

Store-Bought Water Bottles: An inexpensive route would be to buy many cases of store-bought water. Even cheaply from the big-box stores, to fit the requirements set above, a 24-pack case of 16.9-ounce water bottles equals about 3.2 gallons, meaning you would need 22 cases of water. At about \$4 each, it's about \$90. However, theories and arguments abound about whether or not plastic bottles are safe to keep long-term (see sidebar). Because of this, it's a good idea to rotate out your water cache every eight to 12 months, and it's simple: When you buy a new case of water for regular consumption, date and replace it with the oldest case of water in your supply.

Multi-Gallon Jugs: Many retail stores offer three-, five-, and seven-gallon water bottles to be used with water coolers. They are a great storage solution in that you can easily store a large amount of water in the smallest space possible. But typical water bottles don't stack and they're made from clear plastic (consider algae growth).

Unless you also buy the plastic crates or custom build a shelf system, you'll have water bottles strewn about. There are some companies that offer stackable water containers made with food-grade plastic that are great for tight spaces and are easily transportable.

Water Barrels: A great solution if you have the space is to incorporate 55-gallon plastic drums into your emergency cache of supplies. They are Bisphenol A (BPA)-free and UV-resistant because of their opaque plastic, incredibly sturdy, and, as seen on this month's cover, can be used to make a very buoyant life raft. They're not very portable (full, each weigh close to 500 pounds), they take up a lot of space (at 38-inches tall), but offer a lot of water. Two 55-gallon barrels will provide almost a month of water for a family of five.

Brand new, these barrels are rather expensive, but they can be had cheaper if previously used. Find out what was stored in them before you buy them used (avoid those used for chemical storage) and always make sure to properly clean them no matter what. Again, there are arguments

Healthy Water: Tap vs. Bottled

There are a multitude of opinions about which one is best, most cost-efficient, and healthy, tap water or bottled water. If we put aside all of the ecological reasons why you shouldn't drink tap water (only five percent of plastic bottles are recycled in the U.S., et al) and get rid of the cost factors (bottled water costs many hundreds of times that

of tap water), what is left is which source of water is more healthy? It is a difficult question to answer as there are a variety of sources of conflicting information.

In a study conducted by the Natural Resources Defense Council of 1,000 bottles of drinking water from 103 brands, one in four brands "violated strict applicable

state (California) limits for bottled water in at least one sample, most commonly for arsenic or certain cancer-causing man-made...organic compounds." Also, one in five contained, "more bacteria than allowed under microbiological-purity 'guidelines' adopted by some states, the industry, and Europe.

In the United States, tap water is regulated by the Environmental Protection Agency (EPA), while bottled water is regulated by the Food and Drug Administration (FDA). While most bottled water is completely healthy and safe to drink, the laws and standards governing tap water and bottled water differ greatly:



Tap Water

Can have no confirmed E. coli or fecal coliform bacteria. »

Must be filtered and disinfected. »

Must be tested 100 or more times a month. »

Must be tested for Cryptosporidium or Giardia. »

Must meet standards for certain important toxic or cancer-causing chemicals, such as phthalate.

Must be tested at government-certified labs. »

Test reports must be reported to the government. »

Cities must disclose to the public what's in the water. »

Bottled Water

« A certain amount of any type of coliform bacteria is allowed.

« There are no federal filtration or disinfection requirements.

« Must be tested just once a week.

« Bottled water companies don't have to test for Cryptosporidium or Giardia.

« FDA has exempted bottled water companies from this standard.

« Can be tested in company-owned facilities.

« Test reports are not reported to anyone.

« Bottle companies are not required to report what's in the water.

about long-term filling and storage. Some say not to store them on concrete as it will adversely react with the plastic, and many suggest using a food-grade hose (for an RV) to fill/empty them. To be on the safe side, put them on a square of carpet or some cardboard.

Rain Barrels: Larger still are rain barrels that collect water from your roof. This is an economic way to passively collect a lot of water, but it comes with hazards and legal questions.

Hazards: In a study by the Texas Water Development Board in 2010, it was discovered that rainwater rinsing off of roofs made from typical materials such as asphalt, wood, concrete, and steel, contain high concentrations of lead, copper, zinc, and other dangerous metals. Additionally, asphalt shingles contain small amounts of chemicals, such as benzo(a)pyrene, which has been identified as a carcinogenic. Because of this, it is best that this water be reserved for maintaining crops or for cleaning.

Legality: Before setting up a rainwater collection system, check your local laws about the legality of doing so. Because some cities rely on treated rainwater to supply its inhabitants (or laws protecting people from the hazards mentioned above or contaminating the ground water), it might

be illegal to harvest rainwater in your area (mostly you just need a permit to do so).

Water Cisterns: These are for serious water hoarders who want or need a supply of water that can last for months if not years. A huge cistern tank of approximately 10,000 gallons can last a family of five around five years. If you have the space to store it (or perhaps an underground storage bunker), a giant cistern is a great investment. And it is an investment, because they are relatively expensive and require a great deal of maintenance, especially if stored underground and supplied via rainwater. The only problem is that most of these systems are not food-grade friendly, so the water will have to be filtered in order to drink it.

HOW TO TREAT WATER

The big issue with storing water for long-term use is to make sure that it is potable when the time comes to break into your supply. A concept to understand is that water doesn't have an expiration date. The very water you're drinking today has been around since the beginning of time (it has been suggested that every drop of water on earth has already been through the digestive tracts of many animals, from the

GEAR GUIDE: Water Storage Solutions



WaterBOB

The WaterBOB is a bathtub-sized food-grade plastic container that allows you to fill up your bathtub with fresh tap water without having to worry about contaminant from cleaning chemicals (or a dirty bathtub). It holds up to 100 gallons, but that will depend on the size of your bathtub. According to the manufacturer, it will keep water fresh for up to 16 weeks. A siphon pump is included.

waterbob.com
\$24.95



55-Gallon Drum Kit

One of the best ways to store water for the long term is with a 55-gallon drum. At 36 inches tall and 23 inches in diameter, the kit includes a water preserver, a siphon pump, and a bung wrench. It is made with polyethylene.

moreprepared.com
\$99.00



7-Gallon Aqua-Tainer

The square shape makes these seven-gallon containers easily stackable, and the strong handle allows them to be portable. At 11 inches square and 15 inches tall, they weight just over two pounds empty. It comes with a spigot that it stored inside the lid.

majorsurplus.com
\$16.95

Where to Find Emergency Water in Your Home

Between the time you read this article to the time you have a fully-sustainable water storage system in place that will properly provide for your entire family, catastrophe may strike. What to do? First order of business, as long as your house and property are safe and secure (turn off the gas valve, etc.), fill your bathtubs with water. If it is an earthquake or flood, the first things to go are city services. Get the water out of your pipes

and into a container before the pressure drops off. Baring that, there are several other sources of water in and around your house that you might overlook:

Hot Water Heater: Depending on your model's capacity, there might be upwards of 80 gallons of completely fresh water waiting for you to tap into. Most water heaters have drain valves that can be opened to empty its contents.

Toilet Tank: The water in the top tank of your toilet is perfectly safe to drink, as it is water directly from the tap. After an emergency, it is a great source for a couple of gallons of water.

Fish Tank: After you eat the fish, filter the water, purify it, and drink it. A 20-gallon fish tank will provide water for a single person for over three weeks... not to mention all of that Omega-3 oil from the fish.

Pool: If you have a decent sized pool, there is around 15,000 gallons of water waiting to be used. The problem is, as soon as the pumps turn off and the chlorine burns away in the sun, the water will become a breeding ground for algae and bacteria. Also, it is uncovered, which means any sort of contamination can (and will) fall in there. After that, the water will have to be filtered and purified.

Water Pipes: There is always water in your pipes. Most will have drained out after the pressure drops, but in some places (check the attic), water will collect in low spots and can be reached by disconnecting the pipes.

Liquid from Canned Goods: Peas, carrots, and other vegetables are usually packed in water to help keep them fresh. Don't dispose of that water. Save it.

Defrosting Freezer: Your freezer might contain a lot of built-up ice that will soon begin to melt when the power goes out. Find a way to capture it. As well, check the tray underneath for runoff. There won't be much, but every little bit counts.

“BETWEEN THE TIME YOU READ THIS ARTICLE TO THE TIME YOU HAVE A FULLY-SUSTAINABLE WATER STORAGE SYSTEM IN PLACE THAT WILL PROPERLY PROVIDE FOR YOUR ENTIRE FAMILY, **CATASTROPHE** MAY STRIKE. BE PREPARED!”



8-Gallon Hydroller

The Hydroller makes transporting eight gallons of water (that weighs around 75 pounds) easy with the wheels and attached handle. The handle folds way, and the large diameter cap makes filling and emptying easy.

relianceproducts.com
\$43.99



Water Bricks

The main benefit to WaterBricks is that they are stackable. Built into the 3.5-gallon container are protrusions (like LEGO) that allow them to be stacked in a number of configuration. The handle helps for easy portability, while the holes through the centers can be used as lashing points. They are 18 inches long, 9 inches wide, and 6 inches high. Empty, each weigh 2.52 pounds. They also offer FoodBrick for dry food storage.

waterbrick.org
\$17.95



1,000-Gallon Storage

This is a free-standing plastic tank for use in storing water indoor or outdoor. It features a vented lid and comes with one fill and one drain fitting. Manufactured from food-grade polyethylene with UV inhibitors, they may be placed on any flat surface. It is 65 inches tall and 75 inches in diameter.

polytanksales
\$781.25

dinosaurs to your neighbor), and it'll never go "bad" if properly stored. What causes water to become undrinkable is the contaminants that gets into it. Chemicals, algae, bacteria, and biologicals that get into your water will ruin it in a couple of days if not immediately.

Water should be completely sealed in an air-tight, opaque container. It should never be opened unless it is to be used. It should be kept in a relatively cool place (or at least where temperatures don't fluctuate too broadly). If you fill your containers with tap water, theoretically you won't need to treat it with anything, like chlorine or iodine, before you seal the container. Water directly from tap is already treated with chemicals to keep it free of water-borne contaminants and algae/bacteria. However, to be on the safe side, you can add an additional 1/8 teaspoon of chlorine per gallon of water. For a 55-gallon drum of water, you'll need seven teaspoons of chlorine to treat it properly. If your city's water supply is well chlorinated, you can skip this, but chlorine can be added after you open the container.

Another viable option is to add an over-the-counter water treatment chemical specifically designed to purify water for immediate drinking or long-term storage. Most products offer colorless and odorless additives that won't have the aftertaste that chlorine or iodine does.

Note that water stored for a long time will lack oxygen, which will give it an overall flat taste. To remedy this, just stir it up a little bit, as that flat taste doesn't mean anything is wrong with your water. However, if you think that contaminants leached into your supply, just boil it.

WATER IS LIFE

Once your water storage system is in place, forget about it. Rotate the plastic water bottles when it is convenient to do so, but for the larger containers, let them ride out the days, weeks, months, and years until tragedy strikes and you need them. It is best to keep some chlorine on hand, though, in case something goes wrong. Remember, without water, you're without life. Store it liberally. **AM**

Planting Self-Sufficiency

BEST TIPS FOR STARTING YOUR OWN GARDEN Story and Photography by **Carrie Visintainer**

FOOD SUPPLIED VIA GROCERY STORES AND EVEN NEIGHBORHOOD FARMER'S MARKETS WILL END DURING ANY PROLONGED SITUATION. ODDS ARE GREAT IT WILL END IN A SPECTACULAR RIOT FOR THE REMAINING SCRAPS.

The last thing you want to do is be so unprepared that you are in the thick of the shortage with no backup plan. Instead, plan for the unexpected by providing a never-ending supply of fruits and vegetables for you and your family by planting a garden. It will make you a producer instead of a consumer. It will make you self-sufficient.

When it comes to building self-sufficiency — a core value for everyday preppers — one of the best things you can do is plant your own garden. There are so many compelling reasons. For starters, we live in a culture that's become all about fast food and grab-and-go meals, with less focus on nutrition. Even if you're making an effort to cook healthy recipes and slow down your meal-times, you can't always trust what you buy. Organic produce in grocery stores is sometimes mislabeled while processed and GMO-containing foods are everywhere. In addition, gardening is the best way to ensure that you're putting nutritious, nourishing food on the dinner table and into your body.

The good news is that don't need acres of rural property or lots of up-front cash in order to start a garden. If you have these resources, that's great. But container gardens have also become common, especially in urban areas, and purchasing seeds and soil requires only a minimal investment. You might also be amazed at what you can do with only a modest-sized suburban backyard. If you'd rather not go it alone, there's also the concept of community gardening, where a group of neighbors or friends pool their labor, money, and talent to produce fruit and vegetable gardens to sustain the whole group.

"WHEN IT COMES TO BUILDING SELF-SUFFICIENCY, ONE OF THE BEST THINGS YOU CAN DO IS PLANT YOUR OWN GARDEN."

happy growing in containers, and so are herbs, which add rich flavor to any recipe, such as basil, parsley, mint, and rosemary. Alternatively, purchase a raised garden bed from your local garden center or fence off a 10x10 foot plot in your backyard. You might be amazed at how much food grows in that small space, and if you decide you really dig gardening, you can always expand your plot, adding a few rows, or pots, at a time. If you really get into it, you may choose to explore innovative gardening techniques like aquaponics or permaculture,

The key is to plan ahead. With a little forward thinking, planting your garden is sure to be a satisfying and empowering experience. Plus, there are some benefits you might not expect. You'll learn to appreciate your outdoor surroundings and get some fresh air while you're at it, encouraging a sustainable life balance.

START SMALL

Don't leap into a half-acre plot your first season. Perhaps start with a few pots on your back step. Tomatoes are



Selecting the right location for your garden may just be a matter of clearing some land near your house. Make sure it gets plenty of light and that there is a reliable water source nearby.



(left) The wonderful thing about some vegetables, such as lettuce, is that you only need to harvest what you plan to use. There's no need to pull the entire plant if you only need a few leaves for your meal.



(right) You will soon discover that many vegetables grow very easily in less than ideal conditions, especially tomatoes.

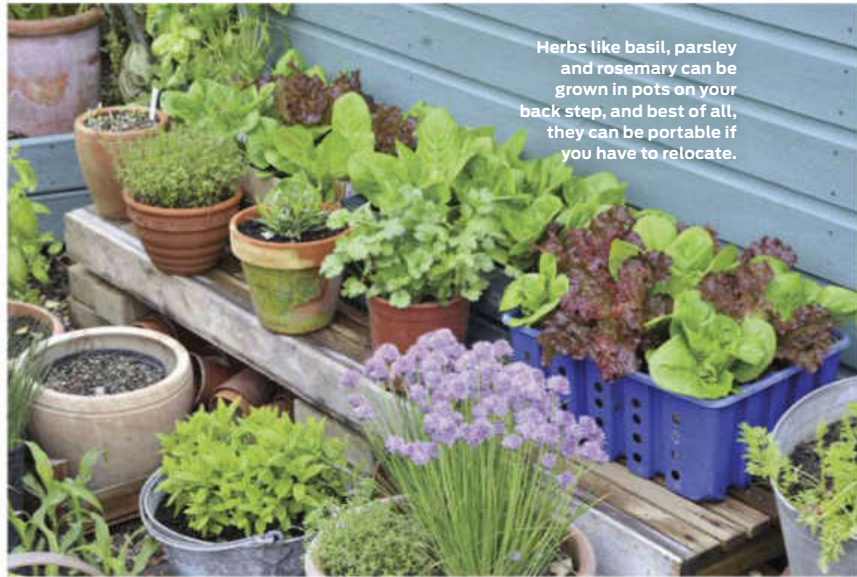


(left) Apple trees provide bountiful fruit from late summer to fall.

or if you live in a place that freezes in the winter, you may decide to purchase a greenhouse kit, which will extend the length of your growing season each year.

CHOOSE A GOOD LOCATION

Your plants will need a few basic things in order to survive and thrive. Two of these are sunlight and water. Watch how the sun moves over your property throughout the day. Which areas get the most sunlight? Most vegetable plants are labeled "Full Sun," which means they like at least six hours of



Herbs like basil, parsley and rosemary can be grown in pots on your back step, and best of all, they can be portable if you have to relocate.

sunshine each day. If you'll be using a garden hose or a watering can for irrigation, choose a spot that's easy to access. In arid climates, you may need to water daily, so make it easy to do. Also, if children are part of your family, choose a spot for your garden that's highly visible. The kids will take great interest in helping to plant and in watching things grow, and you'll want it to be a part of your daily life. Besides being enjoyable, the tasks required for gardening instill excellent life skills in your children from a young age.

SOIL IS MORE THAN DIRT

Gardening requires getting your hands dirty, but you'll be doing so much more than digging in the dirt. Soil matters, a lot. Ideally, plants need soil that is rich in nitrogen, phosphorous, and potassium, plus other trace elements, because these nutrients play an important role in root, stem and leaf development. You'll also want to check the pH of your soil. If you don't know, this is a good opportunity to ask around to your neighbors, especially those who have lived in the area a long time, or who have gardens. You can also check with your local nursery. Trained staff will be able to tell you if it's necessary to amend—make changes, often adding organic matter—to your soil, perhaps because it has too much sand or clay, and they'll have advice on how to do this. One benefit of using raised garden beds or containers is that you can simply purchase a good soil mixture and then fill them up, ensuring you're providing a good growing environment for your seedlings.

LEARN HOW TO COOK

Once you have all of this produce, it's important to know what to do with it! Of course, many vegetables, like lettuce, cucumbers, tomatoes, and radishes, are delicious eaten raw or as part of a green salad (or packed in kid's lunch boxes), but what about veggies like eggplant, zucchini, and pumpkins? Believe it or not there are more options that you can imagine. The website allrecipes.com is an excellent resource, allowing you to search for recipes by ingredient. For example, if you type in "zucchini," recipes come up for everything from Zucchini Soup to Farfalle with Zucchini to Zucchini Puffs. And if you have no idea what to do with kale other than put it in a salad, you

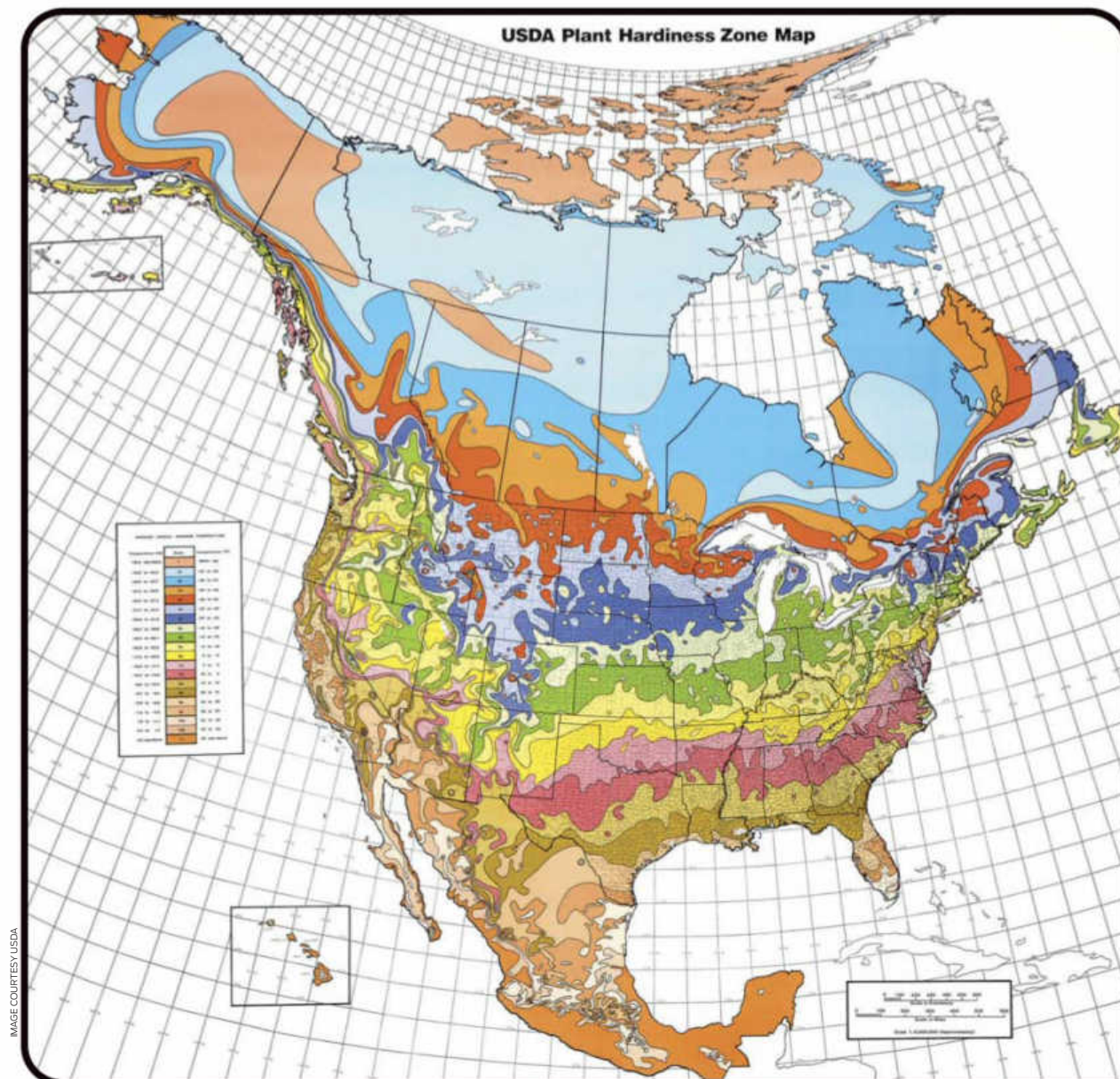


IMAGE COURTESY USDA

will find more than 200 recipe options on this site, including Kale Slaw and Kale Chips; creative, tasty recipes that will satisfy even the pickiest eaters.

Other options include exchanging recipes with neighbors and friends, taking an introduction to cooking class, or checking out some cookbooks at the library. If you live in a place that doesn't have a year-round growing season, it will also be important to learn about the concept of canning. You don't want any of your produce to go to waste, and canned veggies and fruits will ensure that you have nutritious options throughout the winter, until spring arrives and you can go back out to dig in the dirt. **ADD**

Know Your Zone

» Deciding which plants will thrive in your garden depends a lot on where you live. The United States Department of Agriculture has divided the U.S. into different hardiness zones, based on the average annual minimum winter temperature. You can find your zone at garden.org/zipzone, simply by typing in your zip code. Once you know — many states house more than one zone — you can do an Internet search to find out which plants are best. For example, both broccoli and green beans (pole beans) do well in hardiness zones 3-10, and corn thrives in zones 4-8. And don't forget about fruit trees. For example, apple trees are quite hardy, growing well in zones 3-8. A good apple crop will produce more than enough fruit to sustain a family of four.

The Old Farmer's Almanac online is an excellent, tried-and-true resource for searching appropriate plants. You can simply click on the vegetable or fruit — they are alphabetized — and you'll learn in which zones they thrive, plus you'll get extra tips about how to grow them successfully.



PHOTOS BY GETTY IMAGES AND THINKSTOCK

The Easiest Vegetables to Grow

Some vegetables will grow easily in all sorts of conditions. Here is a guide to some of them.

Green Beans

There are hundreds of varieties of green beans — broad beans, bush beans, pole beans — and most of them prefer full sun and well-drained soil. Bush beans take up less space than pole beans and don't need any supporting structures. Beans freeze really well, which means they can be preserved for the whole year.

Tomatoes

With a little water and a lot of sun, tomato plants will grow and fruit all summer long. Tomatoes are fairly drought-tolerant, but will die if subjected to frost.

Radishes

Though some don't care for radishes, they are high in Vitamin C, fiber, and water content. From seeds, radishes take only 20 days to mature. They like partial shade.

Carrots

As a root vegetable, all carrots need is room to grow in rock-free soil, but if you don't mind crooked carrots, rocky soil will work as well. Make sure the soil drains well. They can tolerate light shade but prefer full sun.

Lettuce

Look for Buttercrunch, Salad Bowl or Arugula seeds. Lettuce grows very quickly and is easy to harvest (just cut off leaves as you need them). They can grow in containers and around the bases of other taller plants. They grow well in part shade

Cucumbers

Cucumber plants will take over your garden if you let them. They have far reaching roots, like to climb, and thrive in sunlight and warm temperatures. If watered properly, they are prolific but prone to frost.

Summer Squash

Like beans and cucumbers, squash/zucchini is a prolific plant, so you will probably only need a couple to feed an entire family. They need a lot of water and warm soil. The blossoms are edible too.

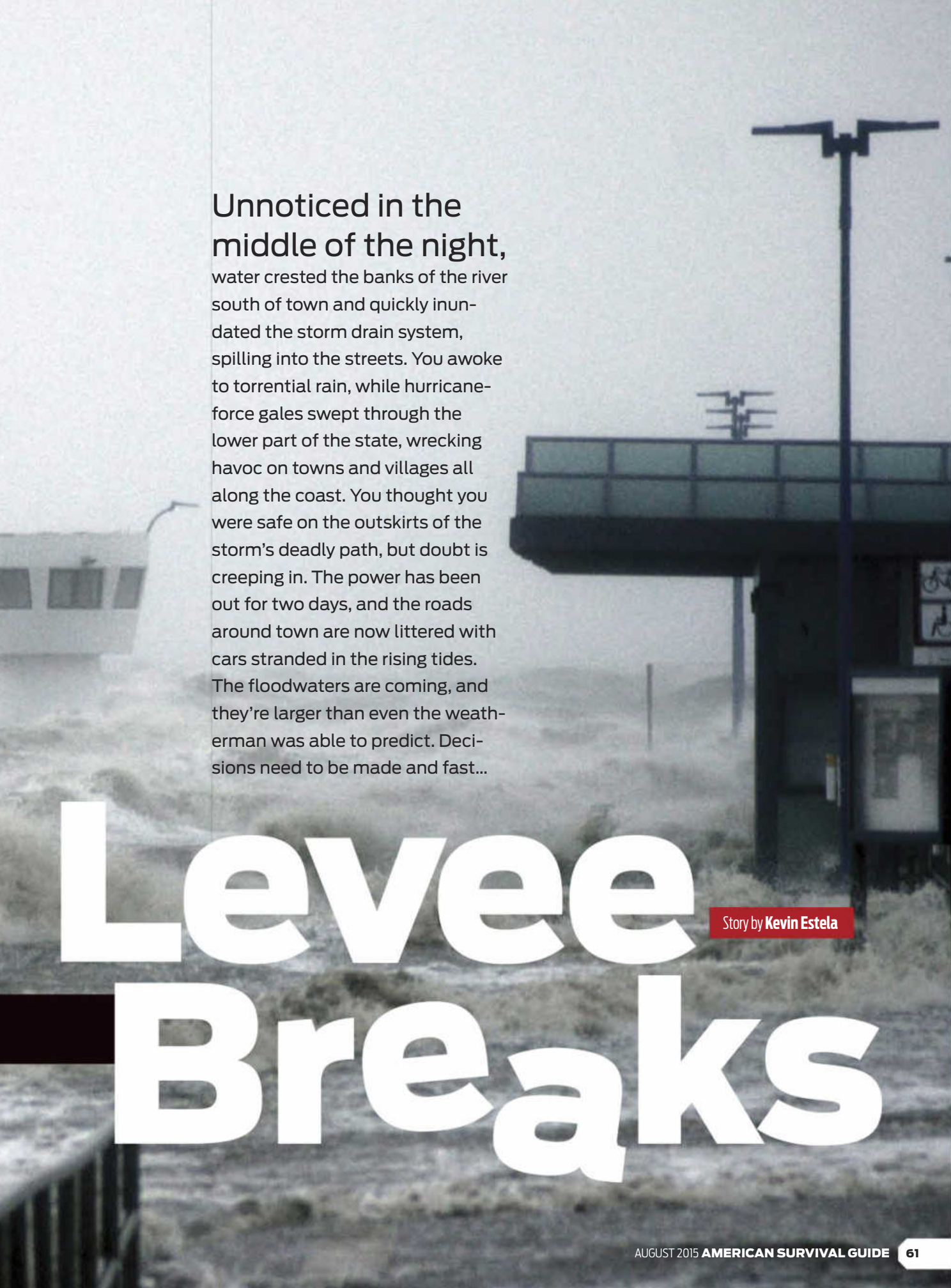


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When the

SURVIVING THE RISING TIDE OF A DEADLY FLOOD

PHOTO BY TONYEN JILL / GETTY IMAGES

A photograph of a flooded street. In the foreground, there's a dark, silty floodwater. In the middle ground, a bus stop with a dark frame and a glass shelter is partially submerged. To the left, a building with a flat roof and some windows is visible. The background is a hazy, overcast sky. The overall tone is somber and urgent.

Unnoticed in the
middle of the night,

water crested the banks of the river south of town and quickly inundated the storm drain system, spilling into the streets. You awoke to torrential rain, while hurricane-force gales swept through the lower part of the state, wrecking havoc on towns and villages all along the coast. You thought you were safe on the outskirts of the storm's deadly path, but doubt is creeping in. The power has been out for two days, and the roads around town are now littered with cars stranded in the rising tides. The floodwaters are coming, and they're larger than even the weatherman was able to predict. Decisions need to be made and fast...

Levee Breaks

Story by **Kevin Estela**



“WHEN MOTHER NATURE OPENS THE HEAVENS AND RAINS POUR DOWN, THE BALANCE OF NATURE TEETERS ON THE ABILITY OF ANIMALS TO SURVIVE THE FLOOD WATERS OR PERISH IN THEM.”

A flood can easily trap you in your home or neighborhood, as the swift currents sweep away any hope of rescue or escape. Bunkering down in your house might be the only method of survival. Plan ahead and keep supplies for just such an occasion.

SEASONS ARE PREDICTABLE

As vital as water is to the ecosystem and your personal survival, in excess, water is deadly. In recent history, this fact has become increasingly evident in the aftermath of Hurricane Katrina in New Orleans, Superstorm Sandy in the Northeast and the deadly floods that hit Texas in late spring 2015. When Mother Nature opens the heavens and rains pour down, the balance of nature teeters on the ability of animals to survive the flood waters or perish in them.

Fortunately for humans, storm seasons are predictable, but the dangers associated with them are not. Survival comes down to good judgment, preparedness and willingness to take action when and where necessary.

EARLY WARNING

Listen to emergency services and weather reports. Storms causing floods are easy to forecast with advanced radar technology. Unless a flood is caused by a dam breaking, rain-caused flooding gives you time to respond accordingly. Decision making does not need to be split second and evacuation of your area may either be voluntary or mandatory with adequate response time.

Though you may be hesitant to leave your home in an evacuation, whether for emotional, spiritual or financial reasons, keep a logical head and err on the side of safety.

Follow instructions if authorities order you out.

ONE WAVE YOU WANT TO MISS

By Jeff Zurschmeide

» **March 11, 2011** was the date of the Tohoku earthquake, centered off the coast of Japan, and we all know what happened next. A tsunami hit the coast and visited enormous destruction on the Japanese people. The west coast of North America lies along the same Pacific Ring of Fire that created Tohoku, but any coastal region could be in danger.

Most American coastal communities have tsunami warning sirens, and that feature will save a lot of lives if and when the sea rises. The good news is that authorities can give you 7 to 10 minutes of warning of an impending tsunami. The bad news is, you'll have just 7 to 10 minutes to make your escape. That includes up to one minute to recognize that the siren you're hearing is the tsunami warning, another minute to grab your stuff and get to the car, if you're quick about it, and then 5 minutes to drive to higher ground – along with every other person in town.

Every second you can shave off that initial response time puts you that much farther ahead of the traffic jam and that much farther from the shoreline.

With that in mind, do you have a tsunami bag packed and ready by the door – or safely stashed in your car?

A tsunami bag is easy to pack, and is really a variation on a basic earthquake preparedness kit, designed for mobility. The exact contents will vary according to your particular circumstances (rural or urban? warm weather or cold?) but here is a list of the basics:

- > Clean and sealed drinking water
- > Non-perishable food
- > A knife, leatherman, or other survival tool
- > A whistle to get attention
- > Necessary medications
- > Hygiene items
- > Flashlight – with batteries stored separately
- > First Aid kit

- > Mylar emergency blanket
- > Portable recharge battery for technology
- > Road flares for signaling and fire starting

Over most of the continental United States, help will be less than 24 hours away, but that could change depending on the size and scope of the event that triggers the tsunami. Plan accordingly.

You can find some interesting information on the frequency of oceanic earthquakes at the National Tsunami Warning Center (wcawc.arh.noaa.gov).



PHOTO BY MARIANNA MASSEY / GETTY IMAGES

By the time police, fire or other emergency personnel begin neighborhood door-to-door evacuation notices, you should already have your plan in motion or be out the door.

BUG IN OR BUG OUT

The consequences of your decisions are yours to live with. The decision to bug in or bug out is made in most emergencies where the safety of the home is in question. Historical data will help make this decision easier. Today in New Orleans, residents must live with the reality and likelihood of flooding given the hurricane history. If water repeatedly floods your home, it may likely do so again. If your home has survived stronger storms in the past, riding out a storm in the



Your tsunami bag doesn't have to be fancy. This canvas bag is tough and holds enough for 24 hours. Just the basics: some food bars, drinking water, wet wipes, sanitizer, medicines and tools.

PHOTO BY HENRY DEKUYPER

safety of your home is a better option than in a “storm refugee” camp like the one set up in the Astrodome post Hurricane Katrina.

If you planned ahead, you may guarantee the safety of your family in terms of preparedness and services better than a municipality, state or federal response overwhelmed. Remember, after Katrina the collective government struggled to hand out water let alone advanced services like medical care. If you have a neighborhood of mutual understanding, help each other with setting up a sandbag brigade to build retaining walls to slow water into your neighborhood, clear street drains to prevent blockages and combine your efforts for the good of the community and alleviate the workload for yourself.

In creating your Bug-in kit, think about providing essentials first such as extra clothing, gallon jugs of water, comfort foods, radio, etc.

Make sure you keep these items well-marked for quick recognition/access and placed in your refuge spot in your home. If you pack any perishable goods, keep track of expiration dates and rotate out supplies when those dates draw near.

“ANOTHER LIFE-SAVING REASON TO AVOID RETURNING TO A FLOODED FLOOR IS POSSIBLE ELECTROCUTION.”



SEEKING HIGH GROUND

The unpredictability of a flood situation may quickly push you and your family higher and higher in your house.

Seeking refuge on a second floor might not be enough, but if the tide is rising beyond your ability to escape, your situation is quickly deteriorating into a dire problem.

Make sure to prepare for exposure to the cold and have the means to provide cover from the elements if pushed out onto your roof (in your kit, make sure to include tools to break out of your attic if need be). Wool blankets are hard to beat and in your home, the weight factor is a non-issue.

DON'T GO BACK BELOW

Think about the items you would be tempted to retrieve in the middle of a flood by going back into the water on the ground floor. Pack these where they will be used and before you need them to reduce exposure to bad water. Another life-saving reason to avoid returning to a flooded floor is possible electrocution. High water may reach electrical boxes. Listen for popping or hissing sounds as well as sparks if you must absolutely move about in these areas.

Prepare your home with all the essentials, like a good sump pump to provide additional

Water Rescue Technique: “Reach, throw, row, go”

Remember this saying, as it will remind you what the correct order is for addressing a distressed swimmer (not unconscious/unresponsive) stuck in the torrents of any out-of-control water. During a flood or other water-related tragedy, consider it your responsibility to assist them back onto dry land. Here's how.

“Reach” This method of rescue involves extending an arm, a stick, a branch or any other object to create a link between the rescuer and the distressed swimmer. This can be done from solid ground or from water, provided you are on safe footing and in no danger of going in yourself.

PHOTO BY GETTY IMAGES - SKULL IMAGE BY WIKIMEDIA COMMONS

drainage and have a plan to get your vehicle ready for movement. Residents of Florida rush to purchase plywood to board up windows for hurricanes. Ground floor windows in flood areas can be boarded up to prevent breakage from floating debris.

Since no castle can stand forever, bugging out may be the better option from the get go. If you are willing to prepare our home for a flood, prepare your vehicle too. Have gear ready to move your family if flooding is imminent and safe egress is possible. Keep road maps handy of evacuation routes and make it a habit to always keep your vehicle filled with sufficient gas to escape the flood zone.



“Throw” The objective of this method is to send the distressed swimmer assistance in the form of a throw rope, extra PFD, seat cushion or anything buoyant that can’t be extended out by hand. The range of this rescue method is limited by the length of your throw rope and the strength of your throwing arm.

“Row” When it is unfeasible to reach or throw, the next best option for rescue is to row. This involves taking a watercraft (kayak, canoe, paddle board, etc) out to the distressed swimmer. The danger of this method is putting yourself closer to the distressed swimmer if your paddling skills are not strong.

“Go” If no other options are available, the final option is to go after the distressed swimmer by swimming. This is the direst of circumstances as cold water, current, rocks/obstructions and other unforeseen conditions may limit your ability to help. However, adrenaline and emotion (especially if the distressed swimmer is friend/family) will help you endure these conditions. Once the swimmer is reached, the next stage is rescue swimming and the rescue is only part over.

ESCAPING HIGH WATER

If you cannot escape to safety in a timely fashion, you may be stuck in your home. Before moving to a second floor or the roof, take the time to move essential items out of lower levels. Make sure you grab a light colored bed sheet and a can of spray paint to create an emergency signal for your roof. The light color will contrast against your dark roof and alert rescuers of your presence. Keep to your plan and stay out of harm’s way. Help will come. Be ready to signal for them when they do.

There is a common misunderstanding a vehicle is unsusceptible to the effects of flooding. During drier times, our vehicles can prove to be reliable and the engines always turn over.

The physical stature of our largest SUVs and trucks provides us a sense of security. However, the most reliable and sturdiest of cars, trucks and SUVs is no match for simple physics in action. Watch news coverage of flooding and you’ll see vehicles washed away and overpowered by floodwater. Only one foot of water can begin to float a small car and 18 inches of water an SUV. As vehicles drive through deeper and deeper water, the buoyancy of the tires affects the tire patch (the surface area of the tire in direct contact with the road). In deep, moving water, the tracking of a vehicle becomes affected and lateral forces can push a vehicle off the side of a road and into a ditch. Also, in deep water, the vehicle’s electronics

A mobile Doppler Radar truck keeps tabs on an approaching storm. Early warning systems are in place to detect threatening storms that might lead to flooding.



“IT WASN’T RAINING WHEN NOAH BUILT THE ARK.”

The decision to stay or leave your home during a flood can be a life or death moment. Flood waters have been known to surge dramatically with little notice. Sometimes, leaving your home for higher ground is the only course of survival.

and air intake can be drowned leaving you stranded in a worse situation than if you’d stayed in your house.

Another issue with driving vehicles around in flood water is unknown depth. Water creates a level surface regardless of changing depth. Flood water is rarely clear enough to see the bottom and washed away roads, obstructions and puncture hazards are easily concealed by murky water. The temptation is always present to leave the security of the home and check on the status of your neighborhood. Roads you have driven countless times before may be blocked off or appear to be completely abandoned. There is likely a reason for this. Don’t complicate your situation further with curiosity and vehicle issues.

WALKING IN WATER

For reasons similar to driving, walking through flood water is not advised. Cutting and trapping hazards may be impossible to see. Also, unseen current may be faster underwater than above. Only a half-foot of fast moving water can take

a person off their feet. Should this happen, a person can be knocked unconscious, become hypothermic, suffer broken bones or severe lacerations in contaminated water.

The best option for travel in flooded neighborhoods is a shallow draft boat such as a rigid inflatable raft, aluminum skiff or canoe. As long as they are used far from the mainstream where they cannot be overpowered by the current, they can help navigate bodies of water formerly known as your neighborhood streets. Power is better than paddle so make sure to keep your engine in running order and have a supply of fuel handy.

WHEN THE WATERS RECEDE

At some point, nature will return to normal. Waters will recede and the challenge of survival continues during cleanup. Flood water has the capability to deposit tons of silt and mud along with a myriad of debris. In 2011, superstorm Sandy destroyed entire neighborhoods in the Mid-Atlantic and New England states. Homes were uprooted from their foundations and

deposited in Long Island Sound and the Atlantic. The iconic Atlantic City boardwalk was washed away and some of the tunnels in Manhattan were flooded rendering the electronics running throughout inoperative. Even when nature returns to normal, life may not.

During the post flood cleanup, one of the immediate threats is structural integrity. Rushing water can carry heavy objects that travel with great momentum. Walls may be compromised and the ground underneath flooring may be eroded. Do not rush back into your home regardless of how much you long for the comforts of home. Smell for broken natural gas lines, listen for noises indicative of instability and scan your home for hazards. If you're not comfortable doing this, have someone experienced in construction assess your home objectively.

If you are able to return to your home and if it appears there may only be minor flooding damage, a greater threat may exist unknown to you. Mold will grow if three conditions are combined, lack of sunlight, moisture and little air flow. To prevent health problems from mold, demolish and remove wet drywall or introduce sunlight or more airflow with fans. Spray down the wooden studs with mold inhibitor and let dry.

Yet another post-flood problem is bacteria. Raw sewage mixed with water and other biological waste can linger on surfaces. Never trust any surface that could have been in contact with flood water. This includes the dishes you eat on in your kitchen and the handles and railings you touch without even thinking. All that is needed to address this threat is wiping down surfaces with a bleach mixture. This correct combination is one part bleach to nine parts water. Apply it liberally with mop and bucket. Bacteria is found on many surfaces and one overlooked is our own clothing and skin. Take all clothing exposed to contaminated water and discard once clean clothes are available. Instead of covering your skin in a bleach solution, warm soapy water can be used to wash with. If running hot water is not available, it pays to have a small camp stove.

THINK AHEAD

It wasn't raining when Noah built the Ark. Floods may occur only so often but being ready for one is ongoing. Having a flood plan and acting on it can mean the difference between life and death. You shouldn't wait until you're over your head to learn how to swim and in a flood you shouldn't wait until you're swimming to learn how to survive. **AAA**



During and after a flood, it is always a good idea to avoid contacting the water with your bare skin. Floodwaters can contain sewage, diseases, rotting plant and animal matter, as well as a host of other dangers.

Dangers in the Water

IT IS A SIMPLE MISCONCEPTION that can lead to compounding disaster: When the flood is over and the water begins to recede, the danger is over as well. In reality, as the water level is returning to normal, a host of new dangers become evident. In your arsenal of equipment for when the water recedes, include rubber gloves, boots, thick and sturdy pants, protective eyewear, shovels, plastic bags, clotheslines, and an alternate and trusted water source.

DAMAGE AND DEBRIS

After a storm, it will take some time for the water to recede back into the ground. Meanwhile, if there were damaged buildings or displaced debris from the storm surge, it more than likely will be lurking just under the water's surface. Nails, screws, shards of glass and metal, and a host of other sharp objects are waiting to be stepped on. Also, watch for downed power lines, broken gas pipes, damaged buildings and polluted drinking water.

What to do: In addition to wearing proper shoes or, better yet, boots, consider including tough denim or canvas pants. In your emergency pack should be gloves (both work and latex) to protect your hands when you are walking in the water. Use a flashlight and not an open flame when in the dark. Don't touch electrical equipment, and don't drink water that didn't come from a sealed container.

DISEASE AND DRAINAGE

The first victims to the infrastructure of a town during a flood is the sewer system.

Because it mostly works via gravity, it is the first to become clogged and overflowed. Toilets, sewers, septic tanks, waste disposal sites will easily lose their contents, which will then mix with the flood waters. Depending on the severity of the flood, included in the mix might be dead bodies (human as well as animal) and hazardous or industrial chemicals and waste that will make for a very toxic soup. Also, beware of mold.

What to do: Avoid exposing any part of your body to the water just after a flood, especially any cuts or open wounds you might have. Wear latex gloves when handling any carbon-based debris in the water. Don't rub your eyes, mouth, or ears, and wash all exposed skin with soap and warm water. Change clothes frequently.

FLORA AND FAUNA

Humans aren't the only ones affected by a flood. After the water begins to return to normal, a variety of animals will be displaced, confused, and likely to lash out if cornered. Snakes, spiders, and vermin (rats, mice) that survived the flood could possibly be trapped in unusual places. Usually floods will uproot trees and/or weaken the tree's root and branch system, making them especially dangerous as the supporting water drains away.

What to do: Be wary of small spaces. Don't put your hands into holes, under items or behind areas that you can't clearly see. Look and listen for signs of trapped animals. Stay clear of trees, especially if they are leaning or their root systems are exposed.

Gear Guide

Story by **Ryan Lee Price** | Photography by ASG Staff

Axes, Hatchets, and 'Hawks



FOR THOUSANDS OF YEARS, the world was built from wood. One stick at a time, huts and homes rose from the dirt, hammered together by craftsman versed and skilled in the art of woodworking. Odds are good, whatever catastrophe befalls you, it will happen in the presence of a source of wood. Elements of that source will be your salvation as long as you have the right tools for the job. You can baton a piece of wood with a knife, basically pounding the spine with another stick to hammer the blade through the wood. Though some knives are especially good at this trick, it isn't a very efficient way of splitting wood for the fire. Axes and hatchets, on the other hand, are purpose-built for this activity.





1. Gerber Sport Axe II

At 14 inches, the Sport Axe II is a great one-handed ax designed to last a long time in rugged environments. The forged steel head is integrated into the fiberglass handle so it will never come loose. At nearly 1.4 pounds, it is light, and the 2.66-inch blade is coated to make it easier to slice through wood without getting stuck. There is a large hole in the end knob of the handle for a lanyard or to hang it up. The green handle and sheath will certainly help in not losing it.

gerbergear.com
\$62



2. Schrade Survival Hatchet

The 4.2-inch 3Cr13 stainless steel blade is titanium coated with an integrated fiberglass handle. It is 11.75 inches overall and weighs just shy of 1.5 pounds. A slight curve in the handle creates an ergonomic balance. The butt has a textured hammerhead for striking, while inside the handle on the knob end neatly hides a 2.5-inch ferro rod. The form-fitted, wrap-around sheath is made of plastic.

taylorbrandsllc.com
\$56.64

3. Kilimanjaro Gear Shira

The Shira has a 3-inch 3Cr13MoV stainless steel blade with a titanium nitride finish. The butt has a grooved hammerhead. It is full-tang construction, allowing an exposed end knob great for hammering as well as a place for a strap or lanyard. The rubber grips have large finger swells in the handle for easy gripping. Overall, the Shira is lightweight and well balanced; it is a compact hatchet with a multitude of uses. The sheath is ballistic nylon.

kilimanjargear.com
\$49.99



4. Schrade Tactical Hatchet

This full-tang tactical hatchet is almost 13 inches long and just over 1.5 pounds. The 3.1-inch blade is made from powdercoated SK5 carbon stainless steel, and features a pry bar on the end knob and a 2-inch spike opposite the blade. The grips are glass filled nylon fiber ergonomically shaped to well fit your hand, and the thumb ramp is well shaped and comfortable. The sheath is a ballistics nylon with button snaps to accommodate a belt. The hatchet features various holes to handle tie-downs and lanyards.

taylorbrandsllc.com
\$106.66

Axes + Hatches + 'Hawks

5. SOG Survival Hawk

Similar in features to SOG's Fasthawk, the Survival Hawk's blade is a little longer, at 3 inches, and there are a few more features, such as a double-sided sharpened point on the bottom of the blade. The glass-reinforced nylon handle is wrapped in paracord and inside is kept a slightly thinner 2-inch ferro rod. The spike end of the head features a nail puller and a fuller groove on either side as well as three fuller grooves on the head's cheeks. There are two lines of jimping along the upper portion of the handle for detail work. The sheath is ballistic nylon.

sogknives.com
\$64

6. SOG BackCountry Axe

The forged head of this ax is made from 1055C stainless steel. It is integrated into the glass-reinforced nylon handle. It's overall length is 16 inches, and the blade features a 3-inch cutting edge. On each side of its face are three grooves that look like fullers similar to those found on combat weapons. The 1.25 x 0.75-inch butt end of the head is smooth. Tucked into the handle is a handy 7.5-inch deep-toothed saw blade with integrated handle. The sheath is molded plastic with an interesting trap door-type closure.

sogknives.com
\$95

7. Tops Wolf pAX 2

The Wolf Pup is one of Tops Knives's most popular knives, so they decided to add it to its new field ax and call it the Wolf pAX 2. It features an interesting integration of the two tools mated together via the friction grip sheath. The hand ax was made to carry on your belt or your pack. Made of 1095 high carbon steel, the blade measures 3 inches and the canvas Micarta handle measures 5 inches. The full-tang is 0.25-inches thick from butt to pommel, and the bottom of the blade is also sharpened for use as a secondary edge. The sheath is Kydex plastic.

topsknives.com
\$240

8. SOG Fasthawk Satin

Lighter and more agile than other tactical 'hawks, the Fasthawk is made from 420 stainless steel with a polished satin finish. It is mounted into a ballistic plastic (glass reinforced nylon) handle with two star-pattern bolts and then wrapped with a steel ferrule to maintain integrity. There is a checkered steel area on the blade cheek that can be used as a hammer, and the 2-inch spike opposite the 2-inch straight blade is a formidable weapon. At just over a foot long and over 1 pound it is a light addition to any pack. Also comes in full black.

sogknives.com
\$50

9. Camillus Sin

With 18.5 feet of 550 paracord providing a sure grip, this 15-inch tomahawk is easy to carry, especially with two bands of exaggerated jimping on the upper portion of the handle. The nearly 8-inch head (from blade to spike) is reinforced with attached plates to ensure strength, while the tang is embedded at least 5 inches into the glass-filled nylon handle. It comes with a ballistic nylon sheath.

camillusknives.com
\$57.99

10. UST ParaHatchet FS

Small and compact, this simple hatchet is made with stainless steel, featuring a black-oxide finish. The 4-inch blade is large in relation to the hatchet's size of only 9.7 inches long. The handle is wrapped in 8 feet of paracord with an addition 1.6 feet in the lanyard. It weighs only 11.4 ounces, and has sockets for three popular bolt sizes. On the butt end of the head is a rope cutter. In the wrap-around nylon sheath includes a ferro rod for firestarting. Also comes with "Glo" green paracord.

ustbrands.com
\$19.99

11. Camillus Ravenous

This 13.5-inch tactical hatchet is made from titanium, attached to the glass-filled nylon handle via four star screws, ensuring the head won't easily detach from the handle. The 2.75-inch cutting edge has a rounded radius from the centerline of the face, giving the hatchet an even striking surface. Opposite the blade is a formidable 2-inch spike. The handle has a diamond grip molded into it and a hole for a lanyard. The sheath is ballistic nylon with button closures.

camillusknives.com
\$34.99

12. Buck Knives Camp

With a blade length of 3 inches and an overall weight of just 17.2 ounces, Buck Knives's small and efficient camp ax. Made from "spring steel" (5160 carbon steel), the powder-coated blade head is incorporated into the hollow injection-molded handle to provide for a resilient tool. The molded-plastic sheath fits easily over the blade with a hook and loop closer. The steel butt is great for hammering.

buckknives.com
\$70

Axes + Hatches + 'Ha

13. Fiskars X17 axe

The bigger brother to the X11 (see 16) is almost 24 inches long, and shares many of the functions of the X11. It tips the scales at 3.44 pounds (and the blade is ¼-inch longer), but doesn't feel heavy or out of balance thanks to its hollow fiberglass handle. The orange portion of the handle is a non-slip coating that will provide a firm grip, even in the rain. This, as well as, the X11 were designed in Billnäs, Finland, where they have been making forged tools for over 360 years.

fiskars.com
\$59.99

14. CRKT Woods Chogan T-Hawk

Sealed with a lacquer coat, the standout feature of this tomahawk is the handle made from Tennessee hickory, which makes this handle very hard, stiff, dense, and shock resistant. Designed by Ryan Johnson of RMJ Tactical in Chattanooga, Tenn., the forged 1055 carbon steel is ground flat and given a hammered finish. The butt is a blunt hammerhead great for general camp work, while the 4.21-inch blade will make quick work of any firewood or tinder.

crkt.com
\$69.99

15. CRKT Kangee T-Hawk

This tactical tomahawk is made from SK5 carbon steel and sports a full-tang, sandwiched by EDM finished glass filled nylon grips (also comes in black). The nearly 3-inch blade is powdercoated and has a flat grid. Opposite is a spike, but all across the eye of the head is ground sharp as well. The end knob has holes for a lanyard and is good for striking. The Kydex sheath is a friction closure with a nylon buckle; it has holes for paracord and slots for webbing.

crkt.com
\$185

16. Fiskars X11

With a hardened forged steel 3-inch blade, the X11 is 17.5 inches long, perfect for one-handed use. The head is permanently molded into the fiberglass hollow handle to ensure that it will never come lose. The extra wide face disperses wood away from the ax, while the low-friction coating helps prevent the ax from getting stuck. The plastic sheath doubles as a carrying handle.

fiskars.com
\$49.99



17. Gerber Myth Hatchet

The Myth hatchet comes with a thick handle compared to its size, so it works surprisingly well for a small hatchet (9.2 inches long). With a really big choil and major jimping along the upper edge of the handle (not to mention a large finger hole in the face), the hatchet stays firm in your hand in slippery conditions. It features a lanyard hole, hammering butt, and a plastic sheath that locks.

gerbergear.com
\$55



18. Gerber Downrange Tomahawk

This is a full-tang 'hawk with several rugged accessories to make coping with the dangers of reality slightly easier. Lightweight, at just over 2 pounds, it features an inch-wide hammerhead and a slightly angled pry bar. The metal is a 420HC steel with Cerakote (ceramic coating). Downrange comes with two sheaths, a friction fitted one that covers the blade but leaves an opening for the hammerhead butt and a way to carry it, and a second sheath that cradles the handle, protects the pry bar and is MOLLE compatible. The full-tang is flanked by G-10 grips with a deep texture to keep your hand in place.

gerbergear.com
\$385



CONQUER YOUR WORLD.

Axes + Hatches + 'Hawks

Manufacturer	Model	Overall		Length	Thickness	Blade			Spike Length	Length	Handle		Grip Diameter	Sheath	Cost
		Length	Weight			Material	HRC	Finish			Material	Finish			
Buck	Camp Axe	12.00	1.12	3.00	0.55	5160 Steel	57-58	n/a	n/a	4.80	GRN	n/a	3.75	Plastic	\$70.00
Camillus	Ravenous	13.25	0.78	2.75	0.21	Titanium	n/a	n/a	2.25	4.25	GRN	n/a	3.50	Nylon	\$34.99
Camillus	Sin	15.00	1.46	4.00	0.20	Titanium	n/a	n/a	2.75	5.50	GRN	Paracord	4.75	Nylon	\$57.99
CRKT	Kangee	13.75	2.07	2.93	0.23	SK5 Steel	54-55	Powdercoat	2.00	10.75	Fiberglass	EDM	3.75	Kydex	\$185.00
CRKT	Woods Chogan	19.13	1.54	4.21	0.52	1055 Steel	50-55	Hammer	2.25	1675.00	Hickory	Lacquer	3.50	n/a	\$69.00
Fiskars	X11	17.50	2.38	3.00	1.06	Forged Steel	n/a	Powdercoat	n/a	7.25	Fiberglass	n/a	4.00	Plastic	\$49.99
Fiskars	X17	23.50	3.44	3.25	1.06	Forged Steel	n/a	Powdercoat	n/a	7.75	Fiberglass	n/a	4.25	Plastic	\$59.99
Gerber Gear	Downrange	19.27	2.12	4.25	0.23	420 HC	n/a	Cerakote	n/a	11.25	G-10	n/a	3.75	Plastic/Nylon	\$385.00
Gerber Gear	Myth	9.20	0.81	4.00	0.23	3Cr13	n/a	n/a	n/a	6.00	Rubber	n/a	3.25	Plastic	\$55.00
Gerber Gear	Sport Axe II	14.00	1.38	2.66	0.70	Forged Steel	n/a	Powdercoat	n/a	7.25	Fiberglass	n/a	4.00	Plastic	\$62.00
Kilimanjaro	Shira	10.00	0.93	2.90	0.20	3Cr13MoV	n/a	Titanium Nitride	n/a	5.00	Rubber	n/a	3.50	Nylon	\$49.99
Schrade	Survival Hatchet	11.75	1.50	3.80	0.56	3Cr13	n/a	Titanium	n/a	5.00	Fiberglass	TPR Rubber	4.00	Plastic	\$56.64
Schrade	Tactical Hatchet	12.80	1.50	3.10	0.24	SK5 Steel	n/a	Powdercoat	2.00	6.25	Fiberglass	Nylon	4.25	Nylon	\$106.66
SOG	BackCountry	16.00	1.82	3.00	0.75	1055 Steel	50-55	Raw Forged	n/a	6.30	GRN	n/a	3.80	Plastic	\$95.00
SOG	FastHawk	12.50	1.05	2.00	0.24	420 HC	51-53	n/a	2.00	7.25	GRN	n/a	3.25	Nylon	\$50.00
SOG	Survival Hawk	12.10	1.25	3.00	0.25	n/a	47-49	Hardcased	2.00	4.50	GRN	Paracord	3.66	Nylon	\$64.00
Tops Knives	Wolf pAX 2	10.12	1.25	3.00	0.25	1095 Steel	n/a	Traction Coating	n/a	5.00	Micarta	n/a	3.75	Kydex	\$240.00
UST	ParaHatchet FS	9.50	0.56	4.00	0.14	n/a	n/a	Black-Oxide	n/a	4.25	Paracord	n/a	3.50	Nylon	\$19.99



Wherever you go, whatever you do—from adventures in the great outdoors, to everyday tasks—Camillus knives are built to exceed your expectations. Any task. Any terrain. Consider it conquered. camillusknives.com

CAMILLUS®
Quality Knives Since 1876



Drink *or* Die

PROVEN WATER
PURIFICATION
TECHNIQUES

Story by **Adam Jones**

WATER IS LIFE'S MATTER AND MATRIX, MOTHER AND MEDIUM.



Nature's most precious nectar is water.

Nothing is more critical to life. An individual can go without water for a couple days. Temperatures that are beyond the moderate range, a lack of shade, dry conditions, and other factors can reduce the amount of liquid reserves left in the body, reducing the time a person can survive without water. Even if there is a water source available, it may not be safe to consume.

There are many common bacteria and amoeba that can cause great discomfort and potentially death if untreated and these are found in many fresh water sources around the world. It is absolutely critical that water be treated for consumption, even if you are in dire need of it. There are solutions that can purify the water in minutes if necessary, and certain procedures must be followed.

THERE IS NO LIFE WITHOUT WATER. —ALBERT SZENT-GYORGYI



The LifeStraw revolutionized the water filter industry with its compact filter system. It can remove 99.9 percent of water-borne protozoan parasites and can filter up to 264 gallons of water before being replaced.



PRODUCTS TO PURIFY WATER

There are a number of very viable and cost effective solutions for water purification on the market today. They range from small hand-held units to larger solutions for greater numbers of individuals. Generally speaking, survivalists should not wait until they are thirsty to start the water purification process, as some methods can take some time to execute. If you intend on using a device that requires solar power to clean or desalinate the water, that is going to take some time, and thirst can be very distracting, and, of course, life threatening, so try to plan ahead as much as possible. The problem with being near unsafe water is that, as thirst increases, it can become more and more tempting to simply drink even if it is toxic.

Probably the most common method of purification by far is also the simplest – small, easy, portable tablets. These can be comprised of a number of different chemicals, some of which can be harmful to the human body, so be certain to read any warnings or disclosures included with the product. Some examples of these are iodine tablets or crystals, sodium chlorite, or potassium permanganate. This should be considered an emergency or short-term solution, as again these chemicals can be harmful long-term, or to children or pregnant women. These chemicals may not kill all parasites.

A lot of filtering products don't include a vessel to contain the filtered water. The GSI DukJug holds one liter and is made of BPA-free Polypropylene. The silicone grip provides a slip-proof hold, and the bottle weighs 6.6 ounces empty.



H₂O

“NOTHING IS MORE IMPORTANT THAN A RELIABLE WATER SOURCE IN A SURVIVAL SITUATION. KNOWING TECHNIQUES TO PURIFY WATER IN ANY ENVIRONMENT CAN SAVE YOUR LIFE.”

Portable water filters are also a common solution for purification needs. When acquiring a device that filters water, an important characteristic to be aware of in these devices is the filter's micron rating. There are certain contaminants that are smaller than others. For example, E. Coli is 0.2 to 4 microns in size, while viruses that are equally lethal can be 0.004 to 0.1 microns in size. Choose a micron rating that is appropriate to where you will be going and what you will be doing. Dirtier water will require a better micron rating to filter out more toxic things.

There are commercially available products that allow for nearly immediate detoxification of water sources. The LifeStraw is a popular item, which is a small cigar-shaped device that allows an individual to consume liquid without first purifying it. It can prevent the transmission of disease by bacteria, protozoa, viruses and does not require electricity or batteries to operate. A newly designed product known as the Life Sack is an interesting technology in that it can be used to transport food staples or grain and then used to purify water using a solar water disinfection process also known as SODIS. Of course, if you only have access to salt water a simple Solar Still will desalinate the liquid.



The MSR Miniworks EX contains a ceramic filter with a carbon core that is effective against bacteria, protozoa, and cysts as well as chemicals, herbicides, and pesticides.



The Sawyer Mini has a 0.1 micron pore size and only weighs about 2.4 ounces. It can treat up to 100,000 gallons of water.

PURIFICATION SPOTLIGHT

Because of the worldwide need for greater access to clean water, there is an increasing focus on crowd sourcing the solution to greater numbers of people. For example, a number of contests are sponsored around the globe by a combination of private and public foundations and other financial sources. For example, 14-year-old Deepika Kurup of Nashua, New Hampshire won \$25,000 from an organization sponsored by The Discovery Channel and 3M (The Discovery Education 3M Young Scientist Challenge). She created a device that uses photo-reactive chemicals to kill bacteria in water and can operate off the electrical grid. This overall movement has spawned other innovations, such as the Pure Water Bottle, a device invented by Timothy Whitehead. It cleans the contaminants from liquid in a matter of minutes using a combination of micro-filters and UV light, and is powered by a manual crank.

A clear plastic Aqua Vessel filtration bottle with a grey cap and a built-in filter attached to a straw. The bottle is shown against a background of blue molecular structures.

The Aqua Vessel filtration bottles provide 0.75 liters of filtered water at a time with a built-in filter attached to the straw.

METHODS TO PURIFY WATER

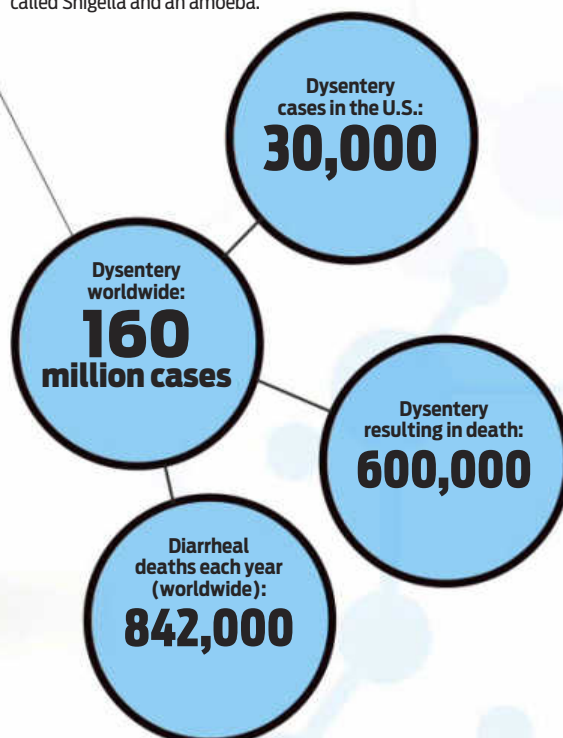
While it can be wishful thinking to believe that every eventuality can be accounted for, with some foreknowledge of purification techniques a survivalist doesn't necessarily need to have a product on hand to detoxify water. There are several ways to clean the water you need without having to be prepared in advance. The first of these is the most simple and most obvious – just boil it. Heating the water above the boiling point – 100 degrees Celsius or 212 degree Fahrenheit – will kill most lethal organisms, but does nothing to reduce the levels of harmful chemicals that may be in the water. This, of course, requires you know how to create and maintain a heat source, or have the resources and environment to do so.

Another method that is useful for purification when no specialized equipment is handy is an in-ground solar still. At minimum, a clear plastic sheet or similar product will be needed. Digging a square or V-shaped pit is the first step. The object of this is to collect moisture from the soil or surrounding vegetation, so adding plant life to

BY THE NUMBERS

Water-borne illness

Dysentery is a major risk for survivalists drinking unpurified water and is characterized by frequent passing of feces, blood, and mucus. It is a prominent risk all around the globe, though primarily in developing countries. It is primarily caused by two main organisms, a bacterium called Shigella and an amoeba.



**“WATER IS THE DRIVING
FORCE OF ALL NATURE.”**

—LEONARDO DI VINCI



the pit is a way to generate additional liquid. At the center of the pit place a small bowl and let the sheet fall into the bowl – a stone can be placed on the sheet over the bowl and thus used to aid in the condensation effect. Placing other stones on the edges of the sheet can keep the center stone from falling into the bowl. Solar radiation will then condense the water from the surrounding soil and drip into the bowl. Adding unclean water, urine, or other liquid can also increase the amount of useful water produced by the process.

Lastly, atmospheric moisture, snow, or rain can be purified using clothing or similar material. Scholarly papers have determined that white cotton cloth (synthetic materials do not work as well) and filtered snow are the safest combination. However, if snow or rain is not available, potentially dirty water can still be made useful. Using a sock filled with sand as a filtering material will work successfully, but are inferior options to those available with some preparation. It may take a few passes through the filter to eliminate the cloudiness of the water, but this can be a solution for an emergency need.

There is nothing more important in a survival situation than access to a viable, clean water source. Water is life. While it is important to prepare for the worst and have a meaningful filtration system handy, there are techniques available to knowledgeable survivalists that prolong life until rescue can occur. As always, staying alive is the most important thing. **AM**



The Aqua Vessel is good for 378 fills before replacing the filter.

Above Left: The old stand-by for making sure water is safe to drink is by boiling. Ten minutes at a rolling boil will kill everything dangerous, however, it may not taste very good or be free of debris.

DROWN

Story By
Larry Schwartz

backcountry.08.15



PHOTO BY WIKIMEDIA.COM

PROOF

NOTHING IS MORE FRIGHTENING THAN BEING STUCK ON A VAST OCEAN IN A DAMAGED OR SINKING BOAT. Mankind is a terrestrial animal; we're meant for the land, and we're not well adapted for swimming great distances or surviving well in the open water. Not only do we lack the fat to stay warm, but we also lack the appendages to propel ourselves efficiently through the water.

Recreational swimming is enjoyable, as are dozens of other sports found on water, which means people spend a lot of time on lakes, rivers, and oceans. But, sometimes things don't go as planned or expected, and what was fun in the sun can quickly turn into a life-or-death situation. A stretch of rough water flips your canoe in the backcountry, or storm clouds roll in, and that relaxing sail in the channel is abruptly interrupted when your sailboat capsizes due to the heavy winds. Watching flood waters swell a nearby stream changes from a spectator sport to a contact sport in the blink of an eye. These are real world events that can toss you into the torrent with little else to do but fend for yourself. Each of us needs to be our own lifeguard.

**WITH A FEW
BASIC SKILLS
LEARN TO
KEEP YOUR
HEAD ABOVE
WATER**



“A STRETCH OF ROUGH WATER FLIPS YOUR CANOE IN THE BACKCOUNTRY, OR STORM CLOUDS ROLL IN AND THAT *RELAXING SAIL IN THE CHANNEL IS ABRUPTLY INTERRUPTED* WHEN YOUR SAILBOAT CAPSIZES DUE TO THE HEAVY WINDS.”

LEARN THE BASIC SKILLS

If you are going to play or be around water the first thing you need to do is to learn how to float. Then you need to learn how to swim.

Many people can float without any difficulty, flat on their back with their toes sticking up. Most of us have some level of positive buoyancy, but not everyone can float; some of us actually have negative buoyancy and need to learn the techniques for keeping themselves from sinking below the water's surface.

In addition to learning to float, swimming strokes you should learn are the backstroke, the sidestroke, the breaststroke, and the overhand or crawl. The first three take the least energy in case you need to conserve your energy or swim a long distance, while the last gives you the most power if you need swim against a current or headwind.

CAN YOU BECOME DROWNPROOF?

Fred Lanoue was a swimming coach at Georgia Tech in the early 1930s. He believed that everyone, regardless of strength, age, or skill, should be able to keep themselves from drowning if they needed to. He did research, developed

(top) If disaster strikes on the water, you need to know how to save yourself. Help won't always be nearby.

techniques, and in 1940, he began teaching people how to “drownproof” themselves.

It was a simple technique and was one that anyone could do, even if they couldn't float. The technique has five steps that you repeat as needed to stay afloat.

Step 1: Start by resting in the water with your body in a vertical position, or at a slight forward angle, whatever is comfortable. Your arms should be held out in front of you and your body should be relaxed. Your face should be down in the water, and the top of your head should just be breaking the surface of the water. It is alright if your head rides higher than that, but it is not necessary.

Step 2: When you are ready to take another breath, push down with your arms and gently kick your legs to raise your head high enough above the water that your nose and mouth clear the surface. As you are doing this you can also start to exhale to prepare your lungs to take in a new breath.



Step 3: When your head clears the water, finish exhaling and then take a deep breath, filling your lungs to capacity. It is important to fill your lungs because when you drop back down in the water they will act like balloons and help to keep you afloat. The more air you take in the more buoyant you will be.

Step 4: After you take your full breath let yourself drop back down into the water and let your face fall beneath the surface again. Your arms should be outstretched like in Step 1.

Step 5: Float like this, with your body relaxed until you feel the need for another breath, normally five to ten seconds. Do what works well for you. Then repeat steps 2 through 4 again and repeat for as long as you need to.

CONSIDER A PERSONAL FLOTATION DEVICE

The next critical part of being your own life-guard is to always wear a Personal Flotation Device (PFD) whenever you are on the water, even if it is just for a few minutes or for a short distance. But, why should I wear a bulky or heavy life vest when I'm only going a short ways on calm water or if the water isn't even five feet deep? Well, because life is full of unexpected events and accidents happens.

Every year submerged rocks or logs flip over rafts and canoes in the backcountry. Every year people are knocked unconscious while pleasure boating when their boat is bounced or capsizes due to the wake from a larger watercraft crossing their bow. There are also more options today than there was in our parent's day or when we last spent time in a boat at summer camp. Today's models are lighter and more buoyant than before, and some new U.S. Coast Guard approved models are even inflatable which makes them much slimmer and smaller when worn but not in use. The five types of PDFs, as defined by the USCG are:

>TYPE I PFDS / OFF-SHORE LIFE JACKETS:

Best for all waters, open ocean, rough seas, or remote water, where rescue may be slow coming. Abandon-ship lifejacket for commercial vessels and all vessels carrying passengers for hire. These PDFs will always turn the wearer face up to keep their face out of the water.

>TYPE II PFDS / NEAR-SHORE BUOYANT VESTS: For general boating activities. Good for calm, inland waters, or where there is a good chance for fast rescue.

PHOTOS COURTESY OF WIKIMEDIA.ORG



(above) The young lady on the right is wearing a Type II PFD while the one on the left is wearing a manually inflating Type III PFD.



(below) You never know when an unexpected event will put you in the water, and maybe unconscious, so always wear a Personal Flotation Device (PFD).

These might turn the wearer face up but it is not guaranteed.

>TYPE III PFDS / FLotation Aids: For general boating or the specialized activity that is marked on the device such as water skiing, hunting, fishing, canoeing, kayaking and others. Good for calm,

inland waters or where there is a good chance for fast rescue. Designed so that wearing it will complement your boating activities.

>TYPE IV PFDS / THROWABLE DEVICES: This type includes devices such as boat cushions or life rings which the person in the water can hold onto and use as an aid to flotation. Its weakness is that the person must have the strength to hold it and is conscious.

>TYPE V PFDS / SPECIAL USE DEVICES: These are only for special uses or conditions. These include the automatically inflating life vests which inflate from a CO2 cartridge when it comes in contact with water. This type is PFD is ideal for situations where the wearer is unconscious or injured, or when a bulkier style is not desired or will not work.

The most important thing to remember about wearing a "life vest" is the USCG slogan, "It can't help you if you aren't wearing it!"



Cold Water Survival

The U.S. Coast Guard provides these life saving facts on its website:

Be aware that cold water (less than 70 degrees F (21 Degrees C)) can lower your body temperature. This is called hypothermia. If your body temperature goes too low, you may pass out and then drown. Even if you're wearing a PFD, your body can cool down 25 times faster in cold water than in air.

Water temperature, body size, amount of body fat, and movement in the water all play a part in cold water survival. Small people cool faster than large people. Children cool faster than adults.

But PFDs can still help you stay alive longer in cold water. They let you float without using energy and they protect part of your body from cold water. A snug-fitting PFD is better than one that's loose-fitting. When you boat in cold water, use a flotation coat or deck-suit style PFD. In cold water, they're better than vests because they cover more of your body.

When you're in cold water, don't swim unless you can reach a nearby boat, fellow survivor, or floating object. Even good swimmers drown while swimming in cold water. Swimming lowers your body temperature.

If a nearby floating object is large, pull yourself up on it. The more your body is out of water, the warmer you'll be. Don't use drown proofing methods that call for putting your face in the water. Keep your head out of the water to lessen heat loss and increase survival time.

The HELP (Heat Escape Lessening Position) position is performed by pulling your knees up and crossing your ankles while crossing your arms across your chest. Use of the HELP position will lessen heat loss by minimizing the amount of exposed body area that is in contact with the cold water. However, if you're wearing a Type III PFD, or if the HELP position turns you face down, bring your legs together tight and your arms tight to your sides and your head back. You should look like you are standing at attention.

If there are others in the water, HUDDLE together for warmth. Keep a positive outlook. It will improve your chances of survival.

Always wear your PFD. Even if you become helpless from hypothermia, your PFD will keep you afloat.

***"BEING
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DEFINITELY
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TIME WHEN
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IS ON THE
LINE."***

DIY LIFESAVING TECHNIQUES

The next part of being able to effectively keep yourself safe and alive when on the water is to learn how to use what is available. You can use objects like your overturned boat or canoe, logs, or foam that is floating in the water as a Type IV flotation device. You can also flip a bucket or similar container over so that it holds air inside of it and act like a beach ball to keep you afloat. Empty containers like plastic bottles or plastic bag can be filled with air and sealed off and used as a flotation device as well.

If there isn't anything floating near you to serve as a flotation device, you still have your clothes to help you out. Believe it or not, once



At the top of the drown proofing cycle, blow out the air in your lungs as you rise up and then take in a full breath before you allow your body to sink back down.

they are fully wet you can turn your shirt and pants into flotation devices.

For your shirt you need to tuck it into your pants, make your cuffs as tight as possible, and button the shirt up as close to your neck as possible. To inflate it you hold the collar in your hands and blow air down into the shirt, inflating it. Hold the collar closed once the shirt is inflated and lean back so that the air moves to the front to help you float face up.

For your pants, tie the ends of each pants leg to the other and then fill the pants with air by holding them behind you and then flipping them over your head and into the water. If that does not fully fill them with air, you can keep the waist of the pants

Hypothermia and You

GET OUT OF THE WATER AS SOON AS YOU CAN BEFORE HYPOTHERMIA SETS IN.

Water Temperature in Degrees F (Degrees C)	Exhaustion or Unconsciousness	Expected Time of Survival
32.5 (0.3)	Under 15 min.	Under 15 to 45 min.
32.5 to 40 (0.3 to 4.5)	15 to 30 min.	30 to 90 min.
40 to 50 (4.5 to 10)	30 to 60 min.	1 to 3 hrs.
50 to 60 (10 to 15.5)	1 to 2 hrs.	1 to 6 hrs.
60 to 70 (15.5 to 21)	2 to 7 hrs.	2 to 40 hrs.
70 to 80 (21 to 26.5)	2 to 12 hrs.	3 hrs. to indefinite
Over 80 (Over 26.5)	Indefinite	Indefinite



To help you float on your back, you can take a deep breath and hold it to turn your chest and lungs into a flotation device. Gentle motions of your hands and arms can also help to keep your chest up and your head above water.



below the water and then put your head below the water and blow air up into the pants. Once inflated enough, put your head in between the legs with the knot behind your head and hold the waist tight to your chest. You can now use the pants like a Type I life vest that will keep your chest up and your head out of the water. Keep the pants wet so that the air does not leak out and you can float for hours until someone comes to rescue you. If using your shirt, as described above, does not work you can use the pants technique, just tie off the arms and the collar.

These are not difficult techniques to use, but they are also not techniques you want to try for the first time when your life is on the line, so try this out at a local pool or lake where you can still stand up while learning how to inflate and seal your clothing.

WATER CONFIDENCE

Being your own lifeguard isn't as hard as you might think. It does take some practice beforehand though to make sure you know the techniques and understand the little details so that you know what works and what does not work. This is definitely something you don't want to do for the first time when your life is on the line. **ASG**



Anything that can hold air inside of it can be used as a flotation device. This Marines assault pack uses a waterproof bag as a liner which can be tied off and sealed so that it holds air and makes the pack float.

how-to.08.15

***“A LIVE BIRD WILL
STORE FOR A LOT
LONGER THAN A
DEAD ONE...”***





The BOX TRAP

AN ANCIENT AND SIMPLE METHOD FOR CAPTURING BIRDS

Story and Photography by **Christopher Nyerges**

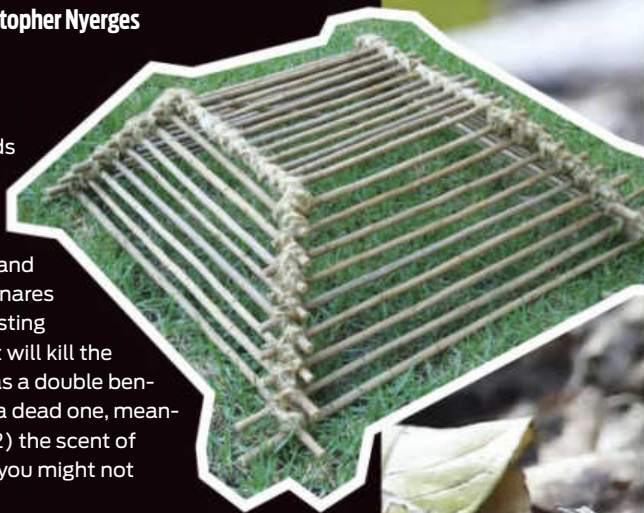
IN MOST REGIONS ON EARTH, from the arctic to the sands of a deserted island, birds can be found, sometimes in great numbers. If faced with a situation where food is scarce, a winged feast is an option, provided you can catch them. Since birds are lithe and spritely, conventional methods of capture, via snares and deadfalls, will be ineffective. Instead of wasting effort and resources building a contraption that will kill the bird, try to simply capture them instead. This has a double benefit: 1) A live bird will store for a lot longer than a dead one, meaning you can capture many and save them; and 2) the scent of dead animals might attract other animals that you might not have the ability to defend yourself from.

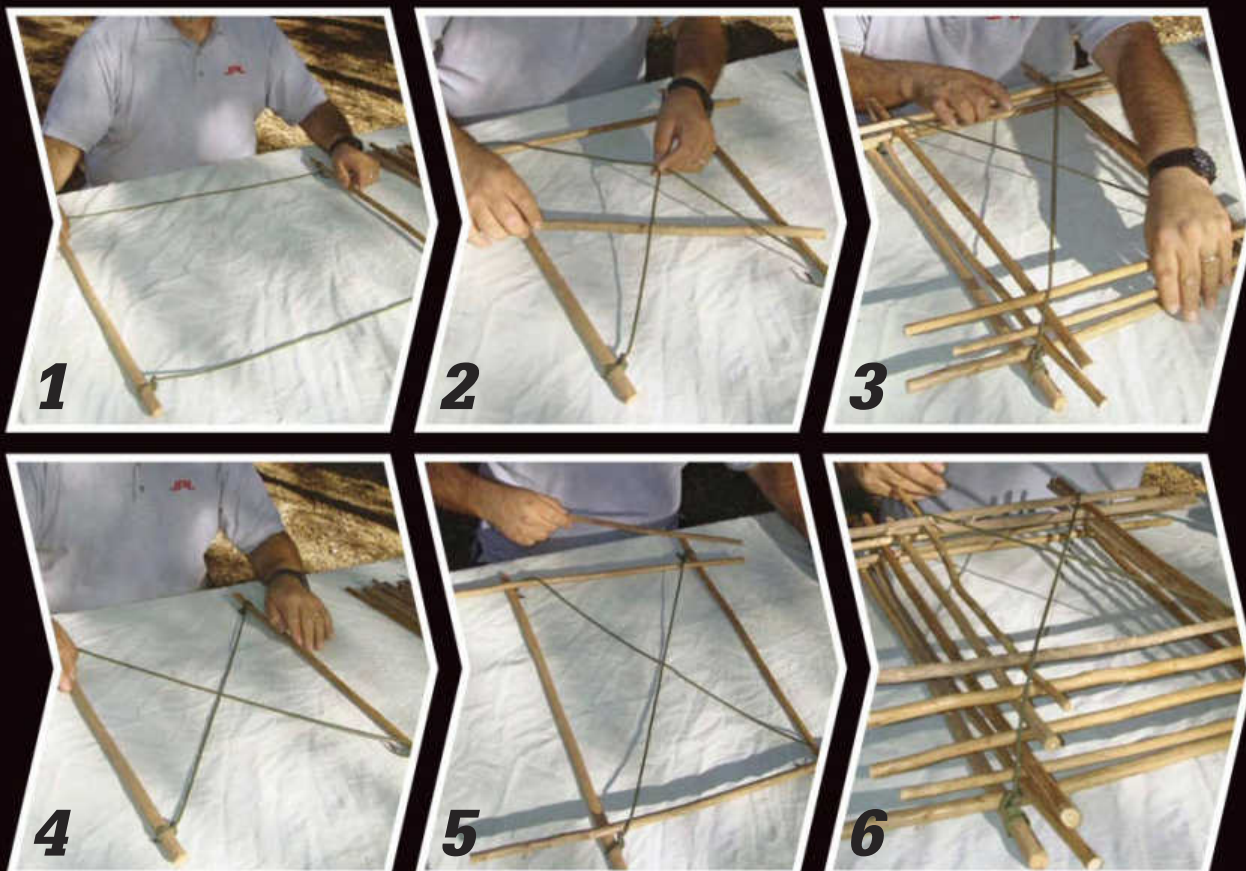
My first introduction to this method of box trap came from anthropologist Paul Campbell, who authored "Survival Skills of Native California." On some of our field outings, Campbell would demonstrate the simplicity of this trap: Once all the straight sticks were cut and ready to go, Campbell could have a finished box trap in about five minutes. The trigger might take a few more minutes to construct, and the set-up took about a minute, but all in all, this is an easy trap to construct and making more than one isn't too difficult.

WHERE TO DEPLOY THE TRAP

Campbell would always emphasize the necessity of scoping out an area to see if there are birds there. He would do this just by sitting quietly and somewhat motionless for awhile, observing what animals begin to make their presence known.

"You'd be surprised how much wildlife is in an area," Campbell once told me, "but people are too noisy to ever notice it."





“A WELL-CONSTRUCTED BOX WILL STAY TIGHT WHEN YOU PROP IT UP AND WILL NOT CONTORT OR ROTATE FROM LACK OF BALANCE...”

TRAP CONSTRUCTION

You need to have a source of straight sticks, such as mulefat, willow, elderberry, or other suitable straight sticks. They should be approximately pencil thickness, no thicker than your little finger. I use mulefat because it is readily available to me.

Begin with two straight pieces about 18 inches long. Tie the two sticks to one another at their ends. See the illustration.

When you hold the sticks apart, each cord should be the same length, and the sticks and cord should roughly form a rectangle. Make sure your knots are tight. I sometimes cut into the wood a little so that the cords stay in place. Then you twist the sticks so that the cord forms an “X” and the overall shape is square.

Now you begin to build your box. Insert two sticks between the cord and the original sticks, perpendicular to the first sticks. You now have a square of four sticks. Add two more sticks under the cord, perpendicular to the previous sticks. Add two more sticks, again perpendicular to the previous sticks.

As you build the box trap, it will begin to form a somewhat pyramidal-shape, and the sticks you need can be shorter and shorter.

Because of this, I typically harvest a load of sticks, all more or less the same thickness, and trim it to length as I build the trap.

The key to making a good trap is keep the shape square as you proceed, and keep the square tight. If you don’t keep it square, it will not have good balance. And if you don’t keep it tight, it will all come apart too easily.

When you are done adding as many sticks to the top, until there are no large opening in the top, your box trap is done.

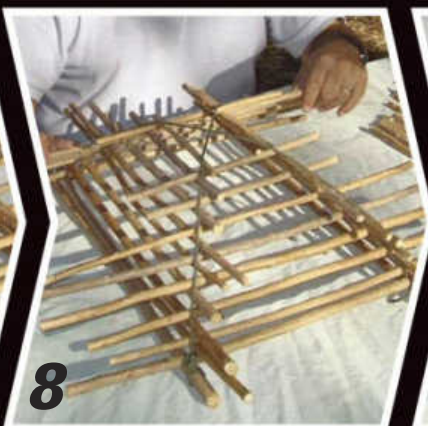
To test the durability of your box trap, you can prop up the front end with a little trig, a few inches long. A well-constructed box will stay tight when you prop it up, and will not contort or rotate from lack of balance and lack of rigidity.

Note of Caution

This is a bird trap, and it does not kill birds. It captures them alive. As with all traps, you should never set it up with the intention of trapping an animal “for fun.” Never capture an animal unless you plan to eat them.

THE TRIGGER

Though you could actually use many trigger mechanisms, I was taught to use the scarf trigger with this quail trap. To make the trigger, take a straight twig about 3 to 4 inches long, and make two cuts into the wood, to just about the



Eating Birds

Campbell enjoyed experimenting with various trapping systems and with the methods of eating the birds he'd catch. At one of our campouts, Campbell demonstrated a method which he said was utilized by many of the

Southwestern tribe. Paul took a mockingbird that he'd captured and he killed it. He then put the entire bird into the coals of the fire, feathers and all. He did this long enough to singe off all hairs. Next, he placed the bird on a flat rock, and began to gently pound the entire bird with a small hand-

stone that he'd found nearby.

Campbell explained that the bones of birds were very porous and could be eaten, and that all the internal organs would add nutrients to the small snack that a bird provided. Once pounded into a roughly hamburger shape, he cooked it again in the coals. He

retrieved it from the coals, did some more kneading and pounding, and placed the bird-burger on a hot flat rock for some final cooking. Campbell raved about the flavor of the bird-burger. Some found it a bit too crunchy for their tastes, but it really was far more palatable than anyone expected.

middle point. Then, with great care, you flake apart the twig into two pieces. If you did it just so, the two pieces will fit back together. Now, see if you can put those two pieces back together and support the box trap. You have to get the balance just so. Once you've figured out that step, now is the time to add one more cord.

You tie two small loops on each end of a cord; each loop goes over the back corner ends of the trap, and the middle of the cord is wrapped around the scarf trigger. It takes a bit of experimenting to get just the right length of cord for this to work. When the cord is attached, you want it to be taut and not loose.

If you've gotten that far, you're ready to capture some quail.

SETTING THE TRAP

Set out the trap in an area where bird might feed on the ground. You should scatter some seed inside the box trap

and a few seeds on the outside to induce quail to come inside. When birds go inside, they will invariably eat the seed and will eventually touch the cord, which will pull the trigger and drop the trap.

Paul Campbell reported to me that sometimes the Mohave Indians would catch so many quail at one time that the trap would nearly lift off the ground. In my experience, we catch one or two birds that are in the area, like mockingbirds, scrub jays, or woodpeckers.

The beauty of this system is that you simply pull out all the sticks when done, and you can wrap up all the sticks in a compact bundle for transportation.

Campbell sometimes made another variation of the above, where he tied a knot at every intersection of sticks. Obviously, this would be a far more time-consuming way to create the box trap, and it is much less compact and portable. However, such a trap would be solid. ■■■



The Kydex sheath seems plenty rugged for all around use. There is considerable adjustment in the sheath, and that is always good.

backcountry.08.15

The Ideal BLADE

Story by **Bob Campbell** | Photography by ASG Staff

THE WARCRAFT TANTO: BUILT FOR HARSH ENVIRONMENTS

WHEN CONSTRUCTING A HASTY SHELTER, DEFENDING THE HOMESTEAD, OR BUILDING A CAMPFIRE, THERE'S NO COMPARISON TO HAVING A BIG STURDY KNIFE. I HAVE YET TO WISH MY KNIFE WAS NOT SO SHARP OR NOT SO BIG. AS SOON AS THEY COME OUT OF THE SHEATH THEY DO A MAN'S WORK IN A HARSH ENVIRONMENT. TODAY A KNIFE IS AN IMPORTANT PIECE OF EQUIPMENT, AND YOU WILL HAVE A DIFFICULT JOURNEY WITHOUT A GREAT ONE. THE COLD STEEL WARCRAFT TANTO IS MEANT FOR HARD USE BY THOSE THAT HAVE LOOKED OVER HELL AND KNEW THE MEANING OF IT. IT IS ONE TOUGH KNIFE. THE WARCRAFT TANTO IS BROUGHT TO YOU BY THE PEOPLE THAT BROUGHT YOU THE TRAILMASTER AND THE RECON SCOUT, AGAIN PROVING THAT A KNIFE IS A REASONABLE INVESTMENT IN YOUR SURVIVAL OR FUTURE IN A HARSH ENVIRONMENT.



"THE TANTO IS A KNIFE WITH A HIGH POINT AND A FLAT GRIND, WHICH COMBINES TOGETHER FOR A HELL OF A STRONG POINT."

**ACTUAL
SIZE**



Pros & Cons

There are considerations when using the Tanto. First, it is more difficult to sharpen than a conventional blade. There are first and secondary points with the Tanto, and two primary bevels. I do not consider this a serious drawback in a knife if care is taken during the sharpening process. Slicing cutting isn't ideal due to the thickness of the blade.

THE BLADE

The Warcraft Tanto is constructed of CPM 3V steel. The steel is chosen for toughness and also for wear resistance. My sample is small- one blade and one knife. Just the same I find it as good as any other Cold Steel knife, which is good, but it suits my personal role in the scheme of things better than any other Cold Steel knife. This is the ideal steel, many believe, for a big knife.

The blade features a high grind which proceeds a little over half way up the blade. The edge is sharp, probably shaving sharp. Cold Steel calls the grind a taper grind, but the point is more true to the idea of a Tanto than most and a good example of the breed.

The Tanto is a knife with a high point and a flat grind, which combines together for a hell of a strong point.

The Tanto features a lot of metal at the tip in order to promote strength. The knife will withstand plenty of use against hard materials. I think that the Tanto is designed for worst-case scenarios, and that is what many of us hope to prepare for. The Tanto isn't as versatile in day-to-day use, but it is most useful in a worst-case scenario requiring great strength and penetration.

If you clean the knife regularly, avoid grinding material into the edge as you sharpen it, and do not attempt to cut barbed wire too often, this steel will carry the day for many days to come. This isn't stainless steel. I do not

The Cold Steel Warcraft Tanto is a good back up to other implements. Rugged, sharp and all business, the Warcraft Tanto is an impressive knife. Note the bevels and points found on the Tanto point.



The handle's grip and texture are well suited for hard use.

The jimping on the top of the tang is a welcome addition.



mind that, as most stainless steel is actually stain-less not stain proof. Edge retention seems better with carbon steel, and the black powder coating provides a barrier against corrosion. At almost 0.20 inches thick, the knife is stout enough for serious use. While a knife makes a poor crowbar, the Warcraft Tanto is thick enough for opening crates and hacking at almost anything.

THE HANDLE

The handle is a continuous glass woven fabric impregnated with epoxy resin binder known as G10. Formed under high pressure, this material is noted for low moisture absorption. Stability is good; the material doesn't shrink over time. G10 is also noted for machining to exact tolerances and retaining those tolerances.

The handles feature a whirled pattern and modest finger grooves. This design allows excellent retention with a good balance of adhesion and abrasion. The finger groove just aft of the choil helps form a lower guard to keep your hand from slipping toward the blade. The top of the tang toward the front of the handle has three grooves for thumb support when doing close work. There is a hole in the handle near the pommel for those that prefer using a lanyard.

SPECIFICATIONS

Blade Length: 7.5 inches
Overall Length: 12.75 inches
Handle Length: 4.75 inches
Steel: U.S. CPM 3-V high-carbon
Weight: 13 ounces
Blade Thickness: 0.196 inches
Handle: Black G-10
Sheath: Secure-Ex Sheath

THE SHEATH

You must have something to carry the knife in. The Warcraft Tanto sheath is tightly held together by strong rivets. Constructed of Kydex this sheath is impervious to oil, solvent or moisture. There is a durable woven fabric belt attachment. The sheath may be adjusted for belt height. The sheath may ride high for daily carry. If you have a heavy load and wish the knife to be out of the way when needed, for an easy draw when, kneeling, the sheath provides.

When you look at the whole picture, the Cold Steel Warcraft Tanto stands above the crowd. **MSRP**



coldsteel.com | MSRP: \$329

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IT'S EARLY SPRING AS YOUR BOOTS MAKE CONTACT WITH THE ROCKY BOTTOM OF A FAST FLOWING RIVER. YOU MAKE YOUR WAY TO THE SANDY BANK JUST IN TIME TO SEE YOUR KAYAK DISAPPEAR AROUND A BEND DOWNSTREAM...ALONG WITH YOUR GEAR. YOU IMMEDIATELY GRAB YOUR SIDE AS YOU EMERGE FROM THE FREEZING WATER AND ARE RELIEVED TO FIND YOUR KNIFE STILL IN ITS SHEATH AND ATTACHED TO YOUR BELT. ALL IS NOT LOST. HOWEVER, THE SUN IS SLIPPING BELOW THE HORIZON, IT'S GETTING DARK, AND YOU ARE SOAKED TO THE BONE AND GETTING HUNGRY. IT'S TIME TO MAKE A PLAN. THANKFULLY YOU'VE HAD SOME BASIC SURVIVAL TRAINING, SO YOUR FOCUS NOW SHIFTS TO FOOD. AND WHAT BETTER SOURCE FOR DINNER THAN THE RIVER YOU JUST CAME OUT OF.

■ Story and Photography by **Clint Jivoin**

Native Fishing

HOW TO BUILD A PRIMITIVE FISH BASKET TRAP



WHY BUILD A FISH TRAP?

As opposed to actively fishing (assuming you don't have any fish hooks), a fish basket trap is, for the most part, a one-time calorie and time expenditure. Aside from checking the trap a few times a day, the occasional repair, and adding more bait when needed, a basket trap is like having a buddy that fishes for you 24 hours a day. This frees the lone survivor to do the less glamorous, but more essential tasks, like shelter-building, purification of water, and the constant chore of gathering firewood. Another huge benefit for building any style of live trap is that live food doesn't spoil.

An animal caught in this style of basket trap can be kept alive for an extended period of time as a form of food storage. The construction of a basket trap can require up to several hours from start to finish; however, when built properly from choice materials it should outlast your survival ordeal...hopefully.

WHERE TO START?

The first step to building a fish basket trap is to decide how big of a trap you'd like to build. The scale of the trap is typically determined by the size of the animal you intend to catch. This basket trap measures roughly three feet in length and is a great size for catching small pan fish. Once you've decided on the size of the trap, cut an odd number of strong green sapling poles that are about three quarters of an inch in diameter. An odd number of poles is

(above) An odd number of poles are placed in the ground forming an upside down conical shape. Small flexible vines are then woven around each of the seven poles in an over/under fashion. When a vine runs out it is jammed into the vines below it, which then keeps it in place.

(right) As the basket is woven upward, the space in between poles increases allowing for the use of the larger, and often less flexible, grape vines. Larger vines are more prone to gaps. However, with attention to detail, they can drastically speed up the basket-making process.





(above) Only five poles are needed to make the funnel for the trap. They are placed in the ground similar to those of the basket, however, a small opening is left in the bottom of the funnel. Once the funnels is woven, trim up the ends of the poles or remove vines as needed.

(left) Grapevines tend to shed their fibrous bark as they are being woven into baskets. This bark can be gathered and used to plug any gaps or holes in the basket.

required for the over/under weaving technique to work properly.

For this particular basket, seven poles were cut and stuck into the ground in an upside down conical fashion. Be sure to place your poles in the ground so that they touch or even slightly overlap on the bottom. This ensures that the basket trap is closed on the back end to prevent dinner from escaping. The tops of the sticks can be manipulated inward or outward as you weave to produce the desired width in the front of the trap.

COLLECTING VINES

The majority of Bushcraft tasks seem to inevitably involve searching for the ideal piece of building material and then collecting a lot of it. This trap is no exception. Gathering the vines

and other materials that are needed for weaving the walls of this trap is without a doubt the most time consuming part of this project. It's good to collect a variety of different sizes of strong vine as smaller vines will be needed at the back of the trap where the most flexibility is required. Don't limit yourself to only using vines. There are plenty

of other options if vines aren't in your area such as green brier, cattail leaves, roots, or the small shoots of some trees.

**“DON'T
LIMIT
YOUR-
SELF TO
ONLY
USING
VINES!”**

WEAVING THE BASKET

Once you've gathered the needed weaving materials, select a small piece of vine and begin weaving in an over/under fashion between the poles from the ground up. When a vine runs out or snaps, simply tuck it into the wall of the trap and begin from that point with a new vine. For this trap, small tree shoots were used for the first six inches or so where a lot of flexibility was needed. As the spread of the basket grew wider, grape vines were then used once less flexibility was required. Continue this process to the top of the trap making sure to consistently push the woven vines downward, keeping gaps between vines as small as possible.

Keep in mind that larger vines typically will mean larger gaps in your basket. If you plan to catch crawfish, a slightly smaller trap made of only small vines will work best.

When is Food a Priority?

These days we tend to fixate on food. Our daily routine revolves around 3 meals per day. This becomes alarmingly apparent when packing for a weekend in the woods. We immediately tend to think “what will I cook for supper?” Instead of leaving room in a backpack for essential gear, many would rather pack 15 candy bars and a case of pop. The reality is that going a weekend without food wouldn't be that bad and let's face it; most of us could probably stand to benefit from missing a few meals anyways. We've all heard that the human body can go three weeks without food. While you would probably be alive after consuming only water for three weeks, you would be in pretty poor condition and the stress load on your body would likely take years to fully recover from. So while food isn't a priority in the short term, it is absolutely essential in a longer term scenario. The question then becomes at what point should the focus shift to food procurement? Food only becomes a priority in a survival scenario once all other core needs are met and sustained.

“FOOD ONLY BECOMES A PRIORITY IN A SURVIVAL SCENARIO ONCE ALL OTHER CORE NEEDS ARE MET AND SUSTAINED.”

THE FUNNEL

The funnel is placed inside of the basket and allows fish to swim in thru a small opening in search of shelter or food. Once inside the main chamber of the basket the fish then becomes disorientated and can't find its way back out of the trap. To create the funnel, place and odd number of sticks in the ground only this time leave a small opening. Weave the funnel in the same over/under pattern all the way to the top before pulling it from the ground and sawing the poles so that they are flush with one another.

The funnel can then be placed into the basket and held in place by a “wreath” made of either vine or in this case cedar bows. Jam a few sticks through both the basket and funnel to insure the front of the trap doesn't loosen once placed in the water.

BAITING THE TRAP

When it comes to baiting a primitive basket trap you really just have to work with what you've got. An old piece of chicken or hot dog held in place by a cotton bag would be ideal, however, when you're trying to catch fish in a

The funnel is placed inside of the basket and a wreath is made from cedar bows to ensure a tight fit. Several sticks are then wedged through both the basket and funnel to bind them together.



If no other options exist, worms or guts can be packed into pine cones and carefully place in the back of the trap and used as bait.



The trap is pulled from the water front first to make sure no fish escape through the tunnel. Once ashore the funnel is removed to reveal a small fish caught in the trap.



Once the trap is baited, several small stones are placed in the back of the trap to help drop it to the bottom on the lake. The trap is then walked out from the shore and placed on the lake bottom facing the shore. Two poles are then driven into the mud on either side of the trap to form an "X" which pins the basket to the bottom of the lake.



basket, resources are probably limited. In the case of this trap, a handful of worms were stuffed into a couple of pine cones before being tossed into the back of the trap. A cotton bandanna makes a great vessel to hold bait or guts inside the trap.

The beauty of this trap is that the guts of any fish that are caught can be tossed back inside and used as bait when resetting the trap. This also helps to conserve your worm supply...just in case things get really bad.

SETTING THE TRAP

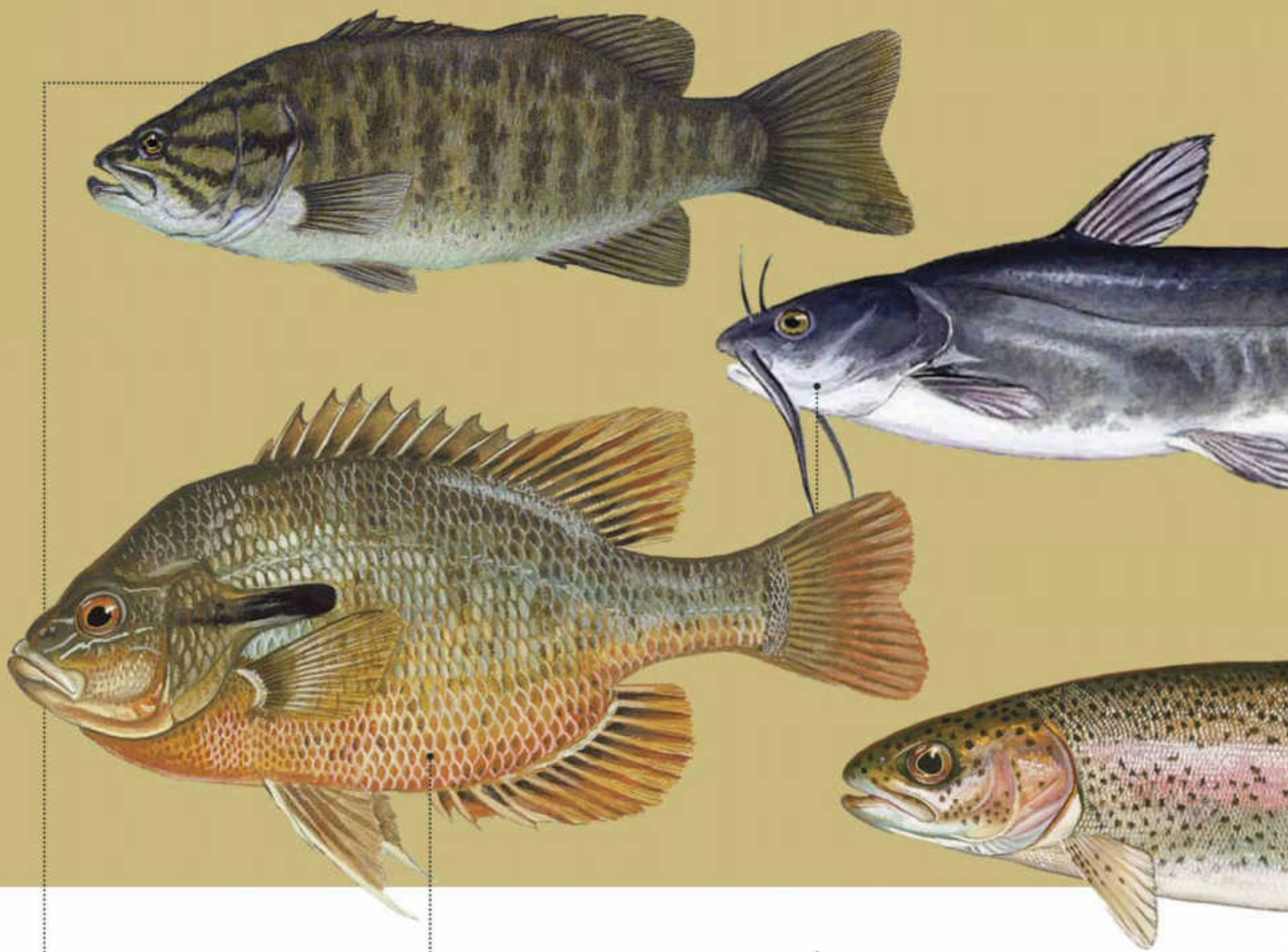
The biggest challenge in setting a basket trap is the buoyancy of the trap itself. For the trap to be fully effective, it needs to rest on the bottom of the lake or river. A great way of doing this is to toss a couple of small stones into the back of the trap and drive two long poles on either side near the front of the trap so that they cross to form an X. This will not only keep the trap secured to the lake bottom, but will also mark where the trap is so you don't have to play Marco Polo every time you check the trap.

CHECKING THE TRAP

Basket traps typically perform better when left overnight so checking the trap first thing in the morning and in the evening should be sufficient. When removing the trap from the water, you'll want to lift the trap top first and get the entire trap on land as quick as possible to prevent any smaller fish from falling through gaps in between vines. Then remove the funnel from the basket and collect your bounty.

Common North American

» Though there are hundreds of varieties of fish plying the waters of North America, there are some very common species, many you might remember catching as a kid. Here are some easy-to-catch and easier-to-cook examples that can be found all over North America.



Black Bass

Black Bass is a popular fish for sport fishermen to catch. It can be cooked in a variety of ways, is easy to gut and filet, and has a slightly fishy flavor. Bass can be found in most all North American waters.

Bluegill

Called Bream in the South, Bluegill can be found in almost all of the waters of North America. They are small—normally under a pound—but they cook well gutted, scaled, and fileted, either pan seared or grilled. The meat is white and flaky and has a sweet flavor.

Catfish

There are many Catfish species found in most North American waters, and they can grow to a variety of sizes. The off-white meat has a very slight fishy taste, and it is common on restaurant menus in the South. Its meat is an off-white and not as flaky as others.

Freshwater Fish



Trout

The ubiquitous trout exist as many varieties in North America, from the rainbow to the spotted cutthroat. It is said that a trout caught minutes before being cooked is the best fish a person could ever eat. The meat is darker and has a definite fishy taste.

Walleye

In competition with the trout for best flavor is the walleye, a cold-water fish commonly found in most northern states and Canada. Its meat is white and sweet with little fishy flavor, and they can be prepared in a wide variety of ways.

White Bass

Found in many of North America's freshwater streams and lakes, the white bass is a freshwater version of the striped bass found in the sea. They grow to be only a couple of pounds, and the meat features a dark red stripe (called a bloodline) and has a very strong fishy taste. ■■■

THE LAST RIFLE

THE ART OF COMPROMISE AND ONE GUN FOR THE END

Story and Photography by **Garrett Lucas**



**“Beware of the man with just one gun.
He probably knows how to use it.”**

That is one of those sayings that old-timers pass off as wisdom ... whether it really is or not.

Through the two decades I've been into preparedness, my supplies have piled up, and I've been leaning toward staying put rather than bugging out if a real crisis emerges. Or, at the very least, I've considered positioning my supplies in a couple of locations that I could get to with a vehicle so it won't have all been in vain.

However, like it or not, we may not have the option of staying or going where we like, no matter how hard we've worked, and we certainly can't take everything with us. This brings me to one of the questions that several of my friends and I have argued about *ad nauseam*.

If the worst happens, and we have to wander the world like Kwai Chang Caine in *Kung Fu*, what's the one best rifle suited to handle all of our needs, including both defensive work and procuring game?





Out of the box, the FN SCAR 17S comes with solid and extremely usable iron sights, which include a ghost-ring aperture on the rear sight.

KEY ATTRIBUTES OF THE SCAR

- 1 CONFIGURABILITY
- 2 CAPACITY
- 3 CALIBER

GUN OF CHOICE

I know a lot of people think that a .22 LR would be the best survival rifle. If we were talking about just hunting and taking small game, I'd agree, but I'm ruling the .22 LR out because it lacks any real combat efficacy.

So, what's my choice? It's the FN SCAR 17S. My argument is based on the attributes of that particular weapon, and there are plenty of other weapons like it on the market.

CALIBER

If I were a betting man, most folks out there would say .223 would be the best caliber because of weight and ammo availability, and some of that makes sense. However, my preference is for the .308 caliber for several reasons.

First, if something goes really sideways, I have no idea where I'll end up, what my situation will be or what I will need to do to survive. I could end up on the other side of the country, and I want a rifle that can handle any threat or large game. Here in the east, there's not much of a challenge, but out west is another story. The western states have populations of mountain lions (much more than back east), black bears, and grizzlies. And, you've also got the addition of larger game animals such as moose, mule deer, and elk.

Additionally, the terrain out west opens up a bit, and the .223 doesn't have the energy to put down big game at longer distances. Even the .308 has to stretch a bit to get through the dense muscle and bone of large game at longer distances.

The point being, you want a caliber that's effective at extended ranges.

CAPACITY

Ever since Jeff Cooper developed the idea of the "Scout Rifle," I've been pretty enamored with the concept. His idea of a Scout Rifle was a light and compact bolt-action rifle that could shoot a .30-caliber cartridge, such as the .308, and be fitted with a long- or intermediate-eye relief scope and use external magazines.

Rather than buy a manufactured Scout Rifle, I put one together myself that meets my needs using a variable 3-9X scope on a short-barrel Remington 700 in .308, making it both lighter and more compact. All of this is bedded in a Wild Dog stock that has a flip-open panel for extra rounds. It's not Cooper's exact design, but I like it pretty well for what it is.

As much as I like the idea, the Scout Rifle doesn't really provide the capacity and rate of fire that a semi-automatic does for defensive work, especially for someone that's alone. Though .223 AR magazines have a higher capacity, the one rifle you will have with you will be a compromise in attributes to do all jobs fairly well (such as taking big game and making longer shots), though it may not excel at all of them.

My original thought of the "Go-To Rifle" was a design similar to Jeff Cooper's Scout Rifle concept. However, I moved from that choice to one that would provide a higher ammunition capacity, quicker reloading, and faster follow-up shots—all particularly necessary for someone on their own.



Besides, during such troubled times, your main focus should be on avoiding altercations and getting out of them quickly if they do happen. If you believe you will be able to routinely engage in sustained firefights with multiple assailants, forget about it. You'll be deadlier than disco. While capacity and rate of fire can help in the first couple minutes, until you figure out an exit strategy, it's not a long-term solution.

CONFIGURABILITY

Another advantage that the SCAR has is its configurability.

The FN SCAR has four rails for installing/substituting items such as grips, lights, lasers, sights, and optics. All of these items would be extremely useful to a person estranged from the world and living away from population centers, whether to light the trail at night, or to target a threat in the darkness.

An additional feature on the SCAR 17S is the folding stock. Though the SCAR 17S is not the ideal CQB weapon, remember that we have been talking in terms of compromises and are settling on a sort of jack-of-all-trades rifle.



Even with its compact size, the Vortex Sparc II provides a crystal clear view with a red dot that is extremely bright and visible, even during daylight. The controls are placed well and are not prone to be accidentally bumped into the "on" position.

If you do have to come out of the backcountry and take the risk of encountering other people, the folding stock allows the user to shorten the rifle by almost a 1/3 of its length, which makes it much more concealable and more usable when working indoors and clearing rooms. You can still use the optic of your choice, such as a red dot, or you can employ a laser that can be installed either on a side rail or even in a vertical foregrip like those offered by Crimson Trace.



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While you lose the magnification affect by using a 1X red dot sight for rapid threat acquisition, there's no reason you can't take along a compact pair of binoculars to glass the local area for game or even threats.

VORTEX SPARC II SPECIFICATIONS

Magnification: 1X
Objective diameter: 22 mm
Eye Relief: Unlimited
Max Elevation Adjustment: 90 MOA
Max Windage Adjustment: 90 MOA
Parallax Setting: Parallax Free
Length: 3.1 inches
Weight: 5.9 ounces

SOURCE: WWW.VORTEXOPTICS.COM

The size difference between the .223 and .308 is immediately apparent.



There are certain parts of this country where large game animals roam, providing substantial food to survivors of some large-scale catastrophe. A larger caliber round than the .223 is required to account for the increased distances and the larger animals.

A BIT ABOUT SIGHTS

One of the most important items regarding configurability is some type of optics.

While the SCAR has perfectly serviceable iron sights with a ghost-ring aperture, I do prefer either a scope or a red dot sight of some sort. Because we are talking about a rifle that has to balance both combat and hunting roles, I prefer a red dot



not, it's an elegant solution for what I'm wanting. It incorporates a 2 MOA red dot sight that is easily seen during the daytime. The unit is waterproof and fogproof, and offers a lifetime warranty to repair the unit for whatever reason.

The SPARC II covers exactly what I need for my one-rifle solution. What I like specifically about the SPARC II is the 2 MOA red dot, which will assist with the required accuracy necessary for a 50- to 100-yard shot. This makes it more appropriate for hunting at longer distances. I also like the fact that it comes standard with several base plates to adjust the height, allowing for absolute co-witness or lower 1/3 co-witness of the iron sights, whichever you prefer.

CLOSING CONSIDERATIONS

My enthusiasm for the FN SCAR 17S' potential as a one-rifle solution if the direst of circumstances occur is not meant as a push to that model or even that brand. I'm simply trying to convey some considerations that I've kept in mind and that you might think about as well. If I thought it were practical to carry a battle rifle, a hunting rifle, a .22 LR and all the accompanying ammo, I'd be all for it, but we know that's not possible.

There are other rifles in other calibers than can fill the same niche as my SCAR. The main point is just to think about all of the possible scenarios and find the right weapon that will be the best compromise for you.

Either way, as long as we're taking steps to be prepared, we're going to be better off than those who haven't given it a single thought.

Plus, we will have one gun, and we know how to use it. **ASG**



The folding stock on the SCAR deducts about a 1/3 of the rifle's length, making it more concealable and easier to use indoors for CQB work.

sight for the SCAR. The red dot allows for quicker target acquisition while allowing both eyes to remain open to scan for threats.

As for hunting, a 2 MOA red dot is accurate enough to easily take deer-sized or larger game under a hundred yards. If there's a threat out past that distance, I don't need a scope to zoom in; I need to beat feet.

We received a Vortex SPARC II red dot sight for use and evaluation, and it's currently residing on the SCAR. Believe it or

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Snip It. Slice It. Saw It. Save It.



Compact and slim, the Pistol Tool fits neatly in your go-bag or in your pocket.

REAL AVID'S RUGGED AND DEPENDABLE MULTI-TOOLS

Story by **Andrew Philips** | Photography by ASG Staff

In a survival situation, the best tool is the one you have in your hand, so why not make the one you have in your hand the best tool? Twine, rope, twigs, branches, wire, kindling, meat, bones, or fabrics... screws, bolts, cans... things will need to be cut, sawed, opened, or repaired. Carrying around a smattering of tools to accomplish all of these tasks is inefficient and impractical, especially when there are tools that combine all of these elements in one. Real Avid provides a host of tools and equipment for exactly that. Aimed at gun owners and outdoorsmen, these tools offer a level of confidence that when faced with an obstacle, surmounting it is only a tool away.



With 18 tools specifically designed for handgun owners, each tool has a well-defined purpose.

The Pistol Tool

Essential to the range bag of any avid shooter and equally essential for a handgun-equipped go bag, the Pistol Tool has 18 titanium-coated stainless steel components specifically designed to handle most repair and maintenance jobs on a wide variety of handguns. From mounting accessories, field striping and adjusting sights to changing grips and flashlight mounts, this tool can do it all. It offers a three-inch blade with a tanto point for general cutting. The four hex keys for laser sights come in sizes ranging from 1/16 to 0.028 inches, while the six hex bits have a variety of drivers, such as 3/16 and 1/8 flathead, #1 and #2 Phillips, a 3/32 hex and a T15 Torx. The bits are equipped with ball detents to ensure they don't slip from the socket.

On the pommel end of the tool is a barrel bushing wrench specifically for a 1911, and the end is a durable surface on which to hammer if need be. The pick and scraper, 3/32-inch punch and the fine tooth metal file (part of the tool driver) lock into position so they won't fold up under pressure, and they all snugly fit into the body of the tool.

THE PISTOL TOOL SPECIFICATIONS

- > Titanium-coated stainless steel components
- > 1911 government and officer bushing wrench
- > 4 bondhus protanium hex keys for laser sights
- > Non-hardened stainless-steel pick/scrapper
- > 2.5-inch bit driver
- > 3/32-inch pin punch with 8-32 threads
- > 3-inch tanto knife
- > 6 hex bits with ball detents
- > Fine-tooth metal file
- > Tap hammer surface

» The six hex bits fit snugly into the driver thanks to the ball detents.



« The four hex keys are designed for the installation and removal of laser sights and other rail-mounted hardware.



Each tool locks securely into position, so they will not fold up under pressure.





It comes with a semi-rigid sheath made from ballistic nylon. The belt loop is wide enough to accommodate most belts.

THE MULTI-CUTTER SPECIFICATIONS

- > Rubber grip handle
- > Stainless steel cutting shears w/ 1/2" cutting notch and shears lock
- > Brush/limb saw
- > 3-inch 440 drop point knife
- > 440 claw point knife
- > Universal choke wrench
- > Tree step starter
- > Pin punch
- > Ballistic nylon sheath

Multi-Cutter

In the field, on an adventure, or scraping by on the skin of your teeth in a survival scenario, Real Avid's Multi-Cutter is a must-have tool. Its rubber grip handle keeps the tool securely in your hand, while the stainless steel cutting shears can snip through larger branches with its half-inch cutting notch. The three-inch drop-point and the claw-point knife blades are made from 440 stainless steel, as are the remaining tools.

Since Real Avid is a gun accessory/tool company, this tool has a universal choke tube wrench that fits .410 to 10-gauge shotgun barrels, as well as a punch pin that can break down shotgun actions for field cleaning and/or maintenance. The branch/limb saw and tree-step starter are essential for hunters as well as outdoorsmen gathering kindling or clearing a blind.

It comes with a ballistic nylon pouch. **AAA**

More at home in the wild of the backcountry, the Multi-Cutter has a great many skills, from cutting to sawing. The two-inch shears have a half-inch cutting notch to steady branches while they are sliced.



realavid.com
MSRP: \$39.99 each

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360°

SELF-DEFENSE

THWART AN ATTACK FROM ANY ANGLE

Story by **Michael D'Angona** | Photography by **Henry DeKuyper**

» PLAIN AND SIMPLE, AN UNPREPARED AND DESPERATE PERSON IN THE WAKE OF A DISASTER IS YOUR ENEMY. DESPERATE PEOPLE IN DIRE SITUATIONS RESORT TO DESPERATE MEASURES, AND THE LAST THING YOU WANT TO HAPPEN TO YOU AND YOUR FAMILY IS TO BE STRIPPED OF YOUR ESSENTIAL GEAR WHEN YOU NEED IT MOST. YOU'VE PREPARED AHEAD; YOU HAVE YOUR NEEDED SUPPLIES IN YOUR B.O.B. OR 72-HOUR BAG. HOWEVER, THERE ARE PEOPLE WHO DIDN'T PREPARE, AND THEY MIGHT NOT THINK TWICE ABOUT TAKING YOUR GEAR BY FORCE.

UNLIKE WHAT YOU SEE IN THE MOVIES OR TV, AN ATTACK MOST LIKELY WON'T COME AT YOU HEAD ON, BUT RATHER FROM THE BACK OR FROM EITHER OF YOUR BLIND SIDES. THERE ARE MANY SIMPLE STEPS YOU CAN TAKE TO NOT ONLY BE AWARE OF SURPRISE ATTACKS FROM DESPERATE INDIVIDUALS, BUT ALSO TO LEARN QUICK AND EFFECTIVE TECHNIQUES TO TAKE THEM OUT OF THE FIGHT PERMANENTLY.



AWARENESS FIRST

Be aware of your surroundings — that particular phrase has been constantly reiterated and reinforced throughout nearly every martial arts school, self-defense class, or children's safety course for decades now, and with good reason. It's absolutely true and it's your first line of defense against surprise attacks. Too many people, especially in these modern days of portable electronics allow themselves to be distracted and ultimately become targets to those out to do them harm or forcibly take their belongings.

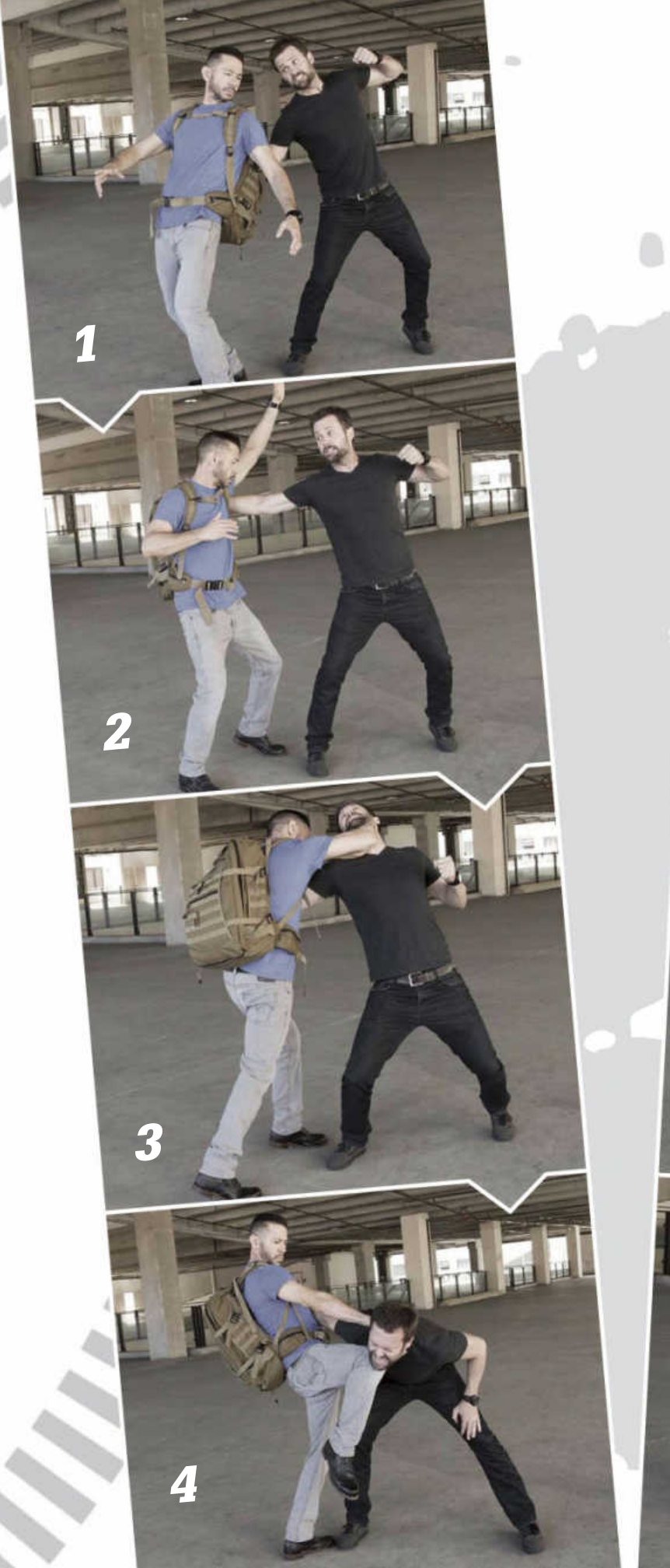
Being aware of who is physically around you and within your eyesight is the first step. As you walk through a populated area, keep your head up high and constantly scan forward, as well as from side to side. This not only allows you to know what's ahead, but also sends out a signal to those watching you that you are alert, aware, and are not going to be taken by surprise. Try to keep a large gap between you and any people walking behind you. Use your peripheral vision to constantly observe over your shoulder and never allow anyone to quickly close the gap that you have created.

Moving throughout close-quarter environments, such as stairways or tight hallways, requires an additional level of awareness. Not only should you look upward (or downward) on a stairway for any signs of others, but also listen for footsteps or voices that can also alert you to their presence. Sound and echoes carry easily in a closed in area. Use them to your advantage.

When walking down hallways, be sure to stay as far away as possible from blind spots that would create a perfect ambush for an attacker and don't let yourself become trapped in a hallway with no clear exit points. A bottleneck can trap you between two aggressive groups where your chances of survival would become very slim.

POSITIONING IS KEY

During a survival situation, an impending attack could create two distinct scenarios. The first would involve you and someone forcibly trying to steal your supplies, literally right off your back. Your 72-hour bag is a prime target to those needing food and other supplies and your B.O.B. would be a very difficult treat for them to resist. The second scenario would be a direct attack upon you. Good people can do bad things when hungry, hurt, and desperate for basic everyday needs that they are lacking from whatever nature or man threw at them.



HIDING IN PLAIN SIGHT

The simple fact is that people are all around you in the world. There will come a time while under survival conditions when you will have to travel through large crowds. Your goal is not to be noticed by others. Learn how to blend in, become invisible and avoid attracting unwanted attention with these 6 valuable tips.

1. CLOTHING – Always try to choose outfits that conforms to the clothing worn by the majority of the crowd. Avoid bright colored clothes, as well as shirts or caps with stand-out slogans laced with profanity, vulgarity or sexual overtones. Do not wear overly expensive or on the flip side, torn up, dirty or excessively worn out apparel. Wear clothing that is appropriate for the environment you are in. Heavy jackets or vests in tropical or southern climates only raise suspicions. Dress similarly to those around you and you will soon become just another fish in the sea.

2. LOCATION – Your physical location within the crowd is very important. Hanging too far out on the fringe of the group can draw unwanted attention to you. Instead, find a balance between staying within the crowd and still being able to flee or escape the area without much interference. Don't position yourself in the corners of a room if indoors; this makes you stand out easily and can leave you with limited escape possibilities.

3. COMMUNICATION – When you find yourself within a large group of people, speaking to another person may be inevitable. Again you need to find a balance between becoming too "chatty" and being observed as a stoic by speaking far too little. If asked a question, try an answer to the best of your ability and move on. Don't elaborate on topics and don't reveal anything personal about yourself, no matter how trivial you may think it is. Avoiding a person's question, or talking so loud that others can hear you will attract unwanted and unneeded eyes on you.

4. BODY LANGUAGE – As with all these tips, maintaining a middle ground is key to becoming just another face in the crowd. In this case, don't be overly outgoing or too introverted to others. This can only draw attention, and attention is what you definitely don't want. Be confident, maintain proper posture, return eye contact and smile if smiled at. Don't appear nervous, lost, or disorientated. These are red flags to others that something with you is not right. Make sure your movement has a purpose; wandering around aimlessly can blow your cover instantly.

5. ELECTRONIC DEVICES – Use your cell phone, MP3 player, or other portable devices to reduce your interaction with others and thus lessen your chances of being noticed or identified at a later time. People are far less likely to start a conversation with you while you have headphones in your ears. You don't even have to have the device on. In fact, it's best to keep it off so you can still hear everything that is going on around you. While sitting at a shop or park bench, a newspaper, magazine, or book works just as well.

6. MIRROR OTHERS – This general idea combines all the previous tips into one package. Your main goal when trying to blend in is to mirror all the characteristics of the people around you. You want to duplicate their mannerisms, their outward appearance, their style of talking, their physical actions, and their overall emotional mentality. By accomplishing this you become one of them and far less likely to ever being viewed as an outsider. This is the backbone of how you hide in plain sight.

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PRACTICE “REAL LIFE SCENARIOS

» Just as you would stock supplies well before any disaster or survival situation may occur, training for personal self-defense should be on your routine long before you need to use it. Your first decision would be to decide what form of self-defense or martial art to begin studying. There are dozens upon dozens of martial art disciples as well as hundreds of independently created styles. Do your research. Watch many different varieties of classes and focus your attention mainly on their self-defense training. Do they incorporate weapons into their curriculum, both offensive and defensive? Do they deal with multiple attack situations? These are the scenarios that will most likely mirror your own situation if and when things go very bad in the world.

Once you have found a location that suits your needs...practice steadily. You will not gain any benefits from just “saying” you take self-defense. The results you achieve are a direct outcome of how much sweat and sometimes blood you spill in class. Once you feel comfortable and natural with the techniques that you have learned, apply them to “real life” scenarios during practice. Have your opponents attack you from different angles, from your blind or weaker side and adapt what you have learned to deal with these unique threats. Repetition is a must to transform generic martial art moves into a fluid and natural-to-perform repertoire of life-saving skills.

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They won't go through the trouble and fight for your goods, they will instead directly assault you, strike hard and take your belongings from your injured or dying body lying on the street.

No matter which of the two situations you may find yourself, the key to overcoming the initial attack is to use proper body movement and positioning to avoid the attack and allow you to effectively counter to end the threat quickly. In the case of your bag being the initial target, the attack would most likely come from your back or your side.

Avoid using strength to try to pull away. This action would only increase your opponent's intent, aggression and determination to win the confrontation. Instead, simply pivot your body and turn into your attacker's extended and occupied arms. With both his upper weapons (his arms) secured on your bag and you positioned in his blind side, you will now be able to strike at his face, break or hyperextend his extended arms or take him down with an easy to apply arm lock. The idea is to keep him close to you to end the conflict, not pushed away so he can return and continue his barrage.

A direct attack on your body is a bit different. Your attacker's intent is to hit you hard (most likely on your skull) and run away with your valuable stuff. This attack can come at you from almost any angle, so it's vitally important to be aware your surroundings. Sidestep the attack, but again keep your aggressor as close to yourself as possible without being in range of a follow up strike. Then using bone breaks or strikes to his vital areas, disable him and quickly flee the scene before others come to his aid or before he recovers.

JAB AT THE VITALS

Strength versus strength and the stronger person usually wins. This unfortunate fact is why you need to rely on technique to overcome a bigger and stronger opponent. When faced with this scenario, you must strike fast and effectively at your attacker's vital areas. The vital areas on any person include the bridge of the nose, the eyes, the throat, the fingers, and the groin, as well as the more subtle locations; the sciatic nerve, the inside area of the knees and the floating ribs. Manipulating these areas should affect the majority of people that you may come across. Those under the influence of drug or alcohol may resist the pain you may inflict, so having a weapon in hand is also a must.

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QUICK GLANCE: AMBUSH SURVIVAL TECHNIQUES

Surroundings:

- > Don't be easily distracted
- > Keep an eye on those around you
- > Are you being watched or followed?
- > Use your peripheral vision
- > Maintain active listening
- > Avoid bottleneck areas

Positioning:

- > Don't expose your back
- > Avoid using strength to pull away
- > Pivot into your attacker
- > Strike hard at his extended arms
- > Sidestep an attack
- > Decrease the attacker's range

Strike Vital Areas:

- > Bridge of the nose, the eyes, the throat, the fingers and the groin, the sciatic nerve, the inside area of the knees, and the floating ribs.

Maintain Control:

- > Keep moving
- > Strike quickly and efficiently
- > Escape at the first chance

Striking into the soft tissue of the eyes temporarily blinds your attacker and allows you to escape. A crushing break to the nose causes your opponent's eyes to tear while blood erupts from his face. This alone may send him running in pain and fear. A sciatic nerve strike can temporarily paralyze his leg rendering it useless and preventing him from standing upright. Keep in mind that these strikes are not knockout punches. They are used to continuously keep your attacker off balance and off his game so he (and his friends) can't overcome you with sheer power or numbers. Finger breaks are quick and effective and require only about eight pounds of force to accomplish. A bone snap can cause shock, intense pain and most importantly, the inability of an attacker to use his hand and most likely his arm to continue the assault.

DON'T GET TIED UP

Evading an ambush by a single person is difficult enough, but what about a multiple attack? Two or more people working together to steal your goods pose a unique challenge for your self-defense abilities. This is where constant movement is an absolute must. Once you stop your motion, your attackers can overwhelm you and accomplish their initial task. You can't

***"A CRUSHING
BREAK TO
THE NOSE
CAUSES YOUR
OPPONENT'S
EYES TO TEAR
WHILE BLOOD
ERUPTS FROM
HIS FACE."***

fight one on one, and if you tried you wouldn't last very long.

All it would take is for one of the men to forcibly grab you and within seconds his partners would completely overtake you. The fight would be over quickly and you would be on the losing end. Stay moving and strike quickly. Your goal is to escape at your first chance and run to safety. There is no room for egos when your life is at stake. Follow this advice and live to see another day.

YOU CAN SURVIVE

An ambush can take even the most experienced person out of the game, but you don't have to be helpless victim. If you follow the basic principles of awareness, body movement and quick and effective striking, you can survive a cowardly blind-sided attack. It takes not only the knowledge of how to survive an attack, but also continuous physical practice under a multitude of scenarios to fully prepare you for an unpredictable future. ■■■

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WARNING – THESE SURVIVAL BAGS ARE NOT FILLED WITH TOYS



Gear Guide

Story by Michael D'Angona

Water Filtration Systems

Take the Worry out of Drinking from Questionable Water Sources

NEARLY THREE QUARTERS of our planet is covered in water, yet only a very minuscule amount of that water is safe to drink. Drinking contaminated water directly or ingesting secondarily while washing your face can only compound problems when you are forced to bug out and live off the surrounding land. What may appear to look and smell like fresh drinkable water, may be saturated with all types of parasitic micro-organisms and various harmful bacteria.

One item that shouldn't be forgotten in your bug-out-bag or supply kit is a water filtration device. This life-saving survival tool performs exactly as its name states: the filtering of harmful materials and organisms out of a water source and leaving behind safe drinkable water. Available in many different sizes, these devices can range from a simple straw that allows you to drink directly from a water source to a large camp-sized version that treats large quantities of water for multiple people. In addition, there are also devices that filter out salt from ocean water when you find yourself surrounded by salt water.

When thirst strikes, the countdown clock begins. Your window to live without water is only two to three days depending upon your environment. Don't leave your survival to chance, hoping to find untainted, fresh water. Pre-planning to carry a water-filtering device is critical to your overall survival plan and to your own personal safety.



Sawyer Mini Water Filter System

Drinking safe and clean water from nearly any man-made or natural source has never been easier. This mini-filter system features an extremely lightweight unit (just two ounces) that can filter up to 100,000 gallons of unsafe water, filtering out micro-organisms and other pathogens that can be harmful to your health. This unit can be used in many diverse ways, including drinking directly from the mini-unit, attaching it to an included squeeze pouch, using inline on a hydration pack and finally attaching it to almost any bottled water. It filters to 0.1 microns, which exceeds EPA and NSF recommendations. Kit includes filter unit with tip cap, reusable pouch, 7-inch drinking straw, cleaning syringe and complete cleaning and maintenance instructions.

BestGlide.com
\$24.99



Survival Water Filter Straw

A must-have for your backpack or even fanny pouch when hiking or trekking through unknown outdoor territory. This ultra-small and compact water filter weighs only 2.2 ounces with its included carrying case. You may forget you are carrying it, yet when fresh, clean water is needed in a pinch you will be glad you have this little miracle worker. Just drop the filter end into a questionable water source and sip just as you would from any beverage of your choice. What goes into the filter as undrinkable tainted water enters your mouth as a clean parasitic-free thirst-quencher. It is documented to remove contaminants with 99.99 percent efficiency and, with numbers like that, worrying about unclear water becomes a thing of the past. Add your own food-grade tubing and siphon water for large groups. Utilizes a replaceable filter and fits into most 2-inch-wide sport bottles.

GoFastandGoLight.com
\$28.88



Katadyn Desalinator Watermaker

This item is an absolute must-have for anyone living nearby or traveling to any marine, beach-front or deep-sea location. This compact portable device produces fresh life-saving water directly from undrinkable sea water. The Watermaker uses only human power to operate, so no batteries, generators or any other fuel supplies are needed. Just manually pump the lever to send seawater under very high pressure through a membrane that filters sea salts and other contaminants easily and effectively. This reverse osmosis process produces clean drinkable water within minutes (about one ounce every two minutes), and can constantly keep your water reserves full until help arrives. Its small design (5 x 2.5 inches) enables you to store it virtually anywhere. The outer casing is constructed of corrosive-resistant materials enabling it to function even under the most extreme conditions. An absolute necessity of marine survival supplies.

Nitro-Pak.com
\$995

Squeeze Filter System

Enjoy the benefits of one of the most advanced, yet extremely simple to use water filtration solutions on the market. Just fill the durable Mylar foil pouch (100 percent BPA free) with water from nearly any source, attach the screw-on filter and enjoy 99.99 percent bacteria free water directly from the included sports cap. The versatile filter cap also fits most 2 liter bottles, useful when filtering water for large groups of thirsty hikers or campers. The 3.5 ounce Sawyer Squeeze Filtration system comes complete with reusable, collapsible pouches, the Sawyer 0.10 micron hollow membrane, screw on/off water filter, pop-up spout and cleaning syringe, enabling you to maintain the unit under all extreme conditions.

Sawyer.com
\$19.37





Tactical Frontier Pro Water Filter Straw

This compact device makes the search for fresh drinkable water a whole lot easier. Just drop the straw into nearly any questionable water source and drink. This straw does all the work by filtering out 99.9 percent of ill-causing micro-organisms like Cryptosporidium and Giardia. This amazing ultra light device filters up to 50 gallons of water before a filter change is necessary, enabling you to take the worry of finding fresh drinking water off your short-term priority list. Its easy drinking integrated cap keeps the mouthpiece clean and the unit itself can attach directly to any common water bottle. Includes four replacement pre-filters.

Nitro-Pak.com
\$20.95



Lifestraw Survival Water Filter

This survival item has been called "one of the best survival products on the planet!" and with good reason...it works! The Lifestraw is one of the most advanced personal water filters available on the market today. It surpasses EPA guidelines for E Coli, Giardia, and Cryptosporidium. Just drop the tip into any questionable water source and out comes crystal clear, safe drinkable water directly into your mouth. It's lightweight, compact and perfect to take on any hike or adventure into the woods. This amazing lifesaver filters down to an incredible 0.2 microns in size, which means that virtually all bacteria (99.99 percent) and all protozoa (99.9 percent) are removed, as well as suspended "muddy" particles, producing clear and tasty water. Perfect for travelers who don't want to "trust" the local water sources, or those struck by a natural disaster where their safe, drinkable water may have been compromised.

Dimensions: 1 x 9 inches; 2 ounces.
NotIfButWhenSurvivalStore.com
\$19.95



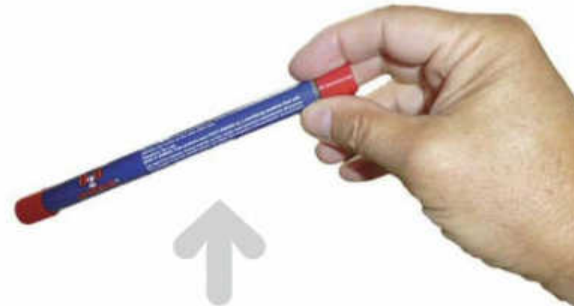
Water Filtration



High Performance Survival Water Filter Bottle

This amazing water bottle pulls double duty when it comes to filtering. It removes toxic chemicals, heavy metals, and unpleasant tastes and odors from common tap water, and also severely reduces (99.99 percent) E-coli, Giardia, and Cryptosporidium found in most streams, lakes or rivers. Just remove the lid, fill the bottle with water and pour or squeeze out delicious, clean & safe water. The bottle itself is BPA free and will not leach into the water. Reusable for years with occasional filter changes. (30 gallons from untreated sources, 100 gallons from tap water) Add two drops of hydrogen peroxide, bleach or iodine, which will be removed by the filter, to kill viruses if present. The perfect water bottle to use while exercising, camping, hunting, hiking, or nearly any outdoor activity.

ClearBrook.net
\$27.95



H₂O Survival Travel Straw

Don't let "bad" water ruin your trip overseas. This pocket water filter will ensure your next drink of water will be fresh. Designed to be similar in size to a normal pen, the Survival Straw can be easily carried anywhere and used instantly when presented with unsure water. It processes the water while you drink through the use of MIR high Iodine Resin. This kills bacteria, such as Giardia and Cryptosporidium instantly within 0.3 seconds. Granular activated charcoal (GAC) and nano balls continue the process by removing heavy metals, odors and any residual iodine. This tiny, yet powerful filters up to 18 gallons of water or the equivalent of 148 16-ounce cups. Take several on your next trip for complete water safety peace of mind.

H₂OSurvivalStraw.com
\$20.99



Lifestraw Family

The name Lifestraw has become synonymous with clean and bacteria-free filtered water. Now you can have this award winning survival tool in a larger, family sized version! This unit filters water for a family of five for up to three full years. That works out to nearly 18,000 liters or 4,750 gallons of pollutant-free water. Viruses, bacteria and protozoan cysts to 0.02 microns (20 nm) are nearly eliminated entirely, as your "unsafe" water comes out crystal clear and tasty from its unique filtering process. The Lifestraw Family requires no electrical power, no batteries, and most importantly, no replacement parts. It features a flow rate of 9 to 12 liters/hour so fresh, safe water will always be ready to drink.

EarthEasy.com
\$75.95



H₂O Survival Camping Water Filter

This heavy duty camping filter offers a three stage filtering process to leave you the freshest and cleanest water to drink under nearly any circumstances. It first removes up to 99.99 percent of harmful bacteria, algae, spores and cysts. Its second stage of protection removes heavy metals, like arsenic, lead, nickel and mercury. Finally, its sediment filter removes debris and other solids. This military-grade unit filters an incredible 13,000 gallons of water through its cleanable, ceramic filter, making it the perfect choice for any large group outings or disaster-struck areas where pure drinking water is an absolute necessity. The Survival Camping Filter comes complete with pump, hoses, filtering cartridges, cleaner pads, weather-proof bag, complete care & instruction manual and full 20 year manufacturer's warranty.

H₂OSurvivalStraw.com
\$250



Creek's Bug Out Complete Hydration Kit

Creek Stewart knows survival, and this complete hydration kit will keep you thirst-free even when faced with dirty, polluted water sources. The included Aquamira filter straw allows you to drink directly from any nearby water source without the fear of stomach sickness or worse. This useful device filters up to 30 gallons of water, slips easily into your daypack, luggage or back pocket and removes 99.9 percent of harmful bacteria and other pathogens. It improves water taste, too! Also included in Creek's kit are chlorine dioxide purifier tablets, a 40-ounce stainless steel canteen, bottle holder, emergency water bag and 4-liter dry sack. There is even a printed bandanna, useful for basic filtering, signaling or over a hundred other survival uses. This truly is a complete "turn-key" hydration kit for everyone.

NotifButWhenSurvivalStore.com
\$89.23



Water Filtration



Katadyn Base Camp Filter

Simple and effective describe this water filter's characteristics perfectly. Just fill the large capacity 2.6 gallon bag with questionable water from any lake, stream or pond and hang from a nearby tree. In less than 20 minutes you will have clean, safe drinkable water for you and all members of your group. No hand-powered or mechanical pumping is needed...ever! The glass pleated filter element removes harmful bacteria and protozoa including Giardia, Salmonella, E Coli, Cryptosporidium, Shigella, and many others. Filter up to 200 gallons before changing filters (depending upon initial water quality) and the included six-foot hose with on/off valve makes filling individual containers fast and spill-free. Ideal for campsites and multi-person outings.

Nitro-Pak.com
\$79

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When All Hell Breaks Loose

Stuff You Need to Know When Disaster Strikes



Cody Lundin is easily recognized and hard to forget. He has broad shoulders, long blond hair in braids, a bandanna and bare feet.

Cody is a survival instructor with more than 26 years of teaching experience. The Aboriginal Living Skills School, founded by Lundin when he struck off on his own after being an instructor at the Boulder Outdoor Survival School, is ranked by some as one of the best survival schools in the country. During his courses, he emphasizes primitive skills like building shelter, fire, and finding water. He feels the more you know the less you need. This is not to say, however, that he eschews modern equipment and techniques. For Lundin, survival is what matters.

“Why spend hours building a debris hut if you have a thermal tarp available,” he said in a pre-Y2K interview in 1999.

He has starred in the survival reality show, “Dual Survival” on the Discovery channel for four seasons, where his primitive living skills as well as his patience were tested against the military survival training of his co-stars. Lundin’s Prescott home was profiled in this magazine as an example of how proper construction can create a home with a small environmental footprint.

Lundin’s second book “When All Hell Breaks Loose: Stuff You Need To Survive When Disaster Strikes” is at its core a reference book which focuses on preparation for urban and suburban dwellers. The book is not written in a way that invites one to read it cover to cover any more than you would read an encyclopedia that way. That said, start at the beginning. The first chapter is titled, appropriately, “How to Use this Book.”

Lundin structured his book in such a way that it is easy to find exactly what you need. If you can’t commit to reading a whole chapter, each section has a “Super Simple Summary.” Let’s face facts, as important as field hygiene is, not many people are up for reading an entire chapter on how to deal with defecating after a disaster (including ever-helpful illustrations).

The “Head Candy” sections get down to the nuts and bolts about material goods. This emphasis of the book is about knowing what you truly need to survive and Lundin recognizes that every person and family is different. What some people can’t conceive of doing without is considered a luxury by others. It is your state of mind that more often than not determines your prospects for survival.

When all hell breaks loose, you’ll be glad this book is in your library. **AAA**

\$12.57 paperback on Amazon.com
\$8.49 on Kindle

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FLOODS: WORLD'S BIGGEST KILLERS

» **Believe it or not**, but the most common natural disaster on Earth and the leading cause of fatalities by natural disaster worldwide for all of history is flooding. Tsunamis, rain storms, and tidal surges kill more people than any other natural disaster combined. Because water is and has been an essential element to live, mankind has always been in close proximity to lakes, rivers, marshlands, and oceans.

The map here, provided by the American Red Cross, shows a county-by-county overview of floods between 1965 and 2003 that were large enough to be declared natural disasters by the President. Red areas represent four or more declarations for those counties over the four decades. Virtually every county in the United States has suffered some amount of flooding.

Last year, in the United States, there were only 38 deaths related to flooding, but according to NOAA, since 1940 there have been 3,309 fatalities due to floods (note that deaths due to hurricanes and rip tides, sometimes the cause of flooding, are listed separately).

Overall, the odds of being caught in a flood in the United States is far more likely than an earthquake, hurricane, tornado, or blizzard. **am**

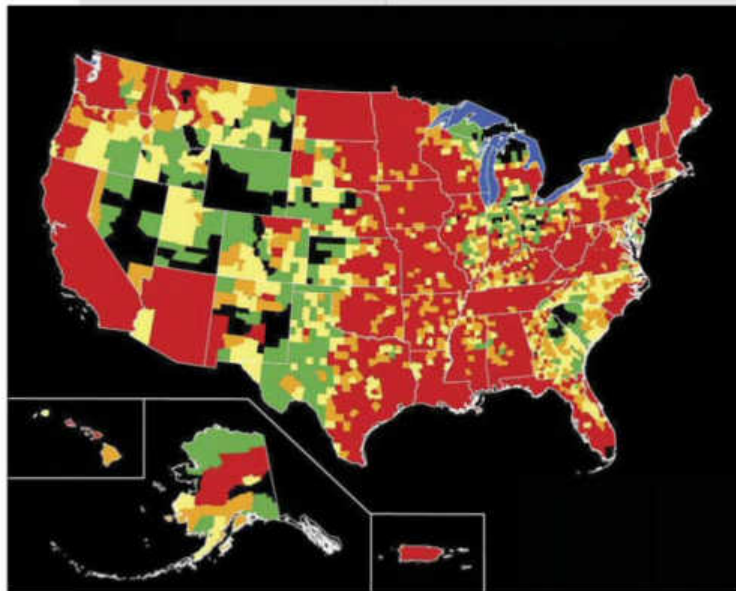


IMAGE COURTESY OF WIKICOMMONS

Five of the Largest Floods in U.S. History

Mississippi River, 1927

In April and May of 1927, 26,000 square miles of land across seven Midwestern states were inundated with water from the Mississippi River. It killed 500 people and left 600,000 homeless.

Interesting Fact: At Vicksburg, Mississippi, the river was 80 miles wide.

Ohio River, 1937

The damage from Ohio River's largest flood on record cost \$20 million and killed 385 people. It left such a swath of flooding that some people were displaced 30 miles from their home.

Interesting Fact: Twelve inches of rain fell in Ohio in only seven days.

Mississippi River, 1993

With \$15 billion dollars in damages, this was the costliest flood in history, affecting nearly 30,000 square miles of land but only caused 32 fatalities.

Interesting Fact: Though the flood reached higher levels and caused more damage, the Great Floods of 1844 and 1951 discharged more water into the Mississippi Valley.

Hurricane Katrina, 2005

Hurricane Katrina was this country's mostly costly natural disaster, with an estimated \$51 billion in damages and more than 1,800 fatalities. The highest winds recorded were clocked at 175mph.

Interesting Fact: 80 percent of the entire city of New Orleans was underwater.

Big Thompson Canyon, Colorado, 1976

Starting with a huge thunderstorm and rain event high up the canyon, dropping nearly eight inches of rain in one hour, a nearly 20-foot wall of water swept down the canyon, clearing away everything in its path. One hundred forty-three people were killed.

Interesting Fact: Because of this flood, building codes for canyons were forever changed.

Worldwide Floods by the Numbers (1980-2010)

1 in 500,000	Odds of dying in a Tsunami
2.8 billion	People affected by flooding
539,811	People killed by flooding
361,974	People injured by flooding
4.5 million	People left homeless by flooding
4,093	Floods reported in the United States
131	Average deadly floods per year
69	Percentage of flood deaths in Southeast Asia



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